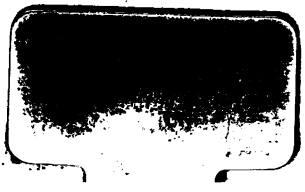


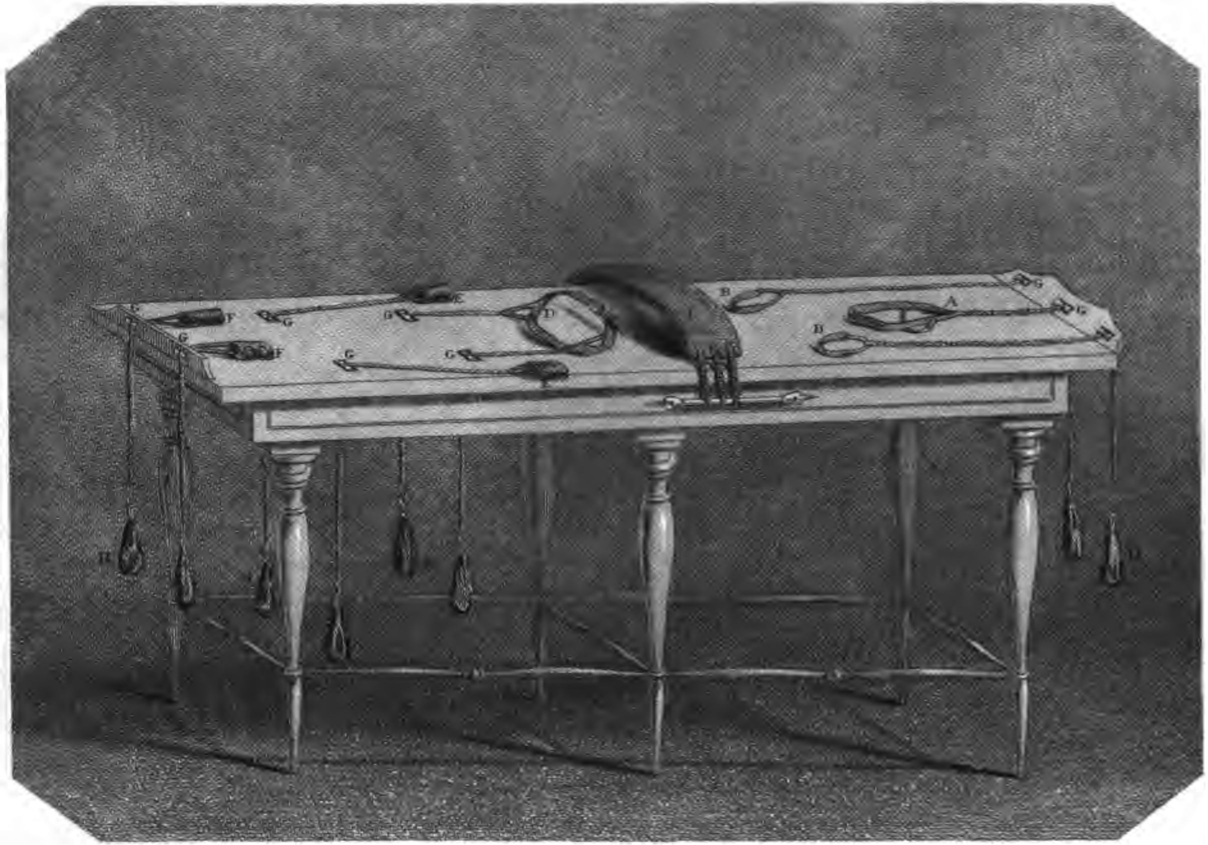
PRACTICAL OBSERVATIONS

ON THE

CAUSES AND TREATMENT

OF

CURVATURES OF THE SPINE.



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PRACTICAL OBSERVATIONS

ON THE

CAUSES AND TREATMENT

OF

CURVATURES OF THE SPINE,

WITH HYGYENIC DIRECTIONS FOR THE PHYSICAL CULTURE OF YOUTH, AS A MEANS OF PREVENTING THE DISEASE;
AN ETCHING AND DESCRIPTION OF AN APPARATUS FOR THE CORRECTION OF THE DEFORMITY;
AND ENGRAVINGS ILLUSTRATIVE OF THE CASES.

BY SAMUEL HARE, SURGEON.

LONDON: SIMPKIN, MARSHALL, & Co.,
W. BEAN AND SON, LEEDS,
AND ALL BOOKSELLERS.

1838.


BODLEIANA · BIBLIOTHECA

TO

SIR BENJAMIN COLLINS BRODIE, BART.

VICE PRESIDENT OF THE ROYAL SOCIETY,

SERGEANT SURGEON TO THE QUEEN,

SENIOR SURGEON TO ST. GEORGE'S HOSPITAL, &c.

SIR,

To you, as one of my earliest Instructors in Anatomy and Surgery, I dedicate the following treatise with the liveliest feelings of respect, as a small token of the high sense I entertain of your talents and worth.

Your persevering researches in Science have deservedly raised you to an elevated rank among British Surgeons; and I feel greatly honoured in having the sanction of your name to introduce to public notice these observations upon a subject, which, among many others, has come within the scope of your investigations.

That you may long continue to adorn the Profession of which you are so distinguished a member, is the warmest wish of,

Sir,

Your sincere Friend and Servant.

SAMUEL HARE.

TO CHARLES ASTON KEY, ESQR.

SENIOR SURGEON TO GUY'S HOSPITAL,

LECTURER ON SURGERY, &c.

SIR,

NEARLY ten years ago, I had the pleasure of laying before you the principles of the treatment recommended in the following pages, of which you did me the honour to express your approval, accompanied with the hope that they would soon be presented to the Profession.

My experience during the period which has since elapsed, has only tended more fully to convince me of the correctness of these views.

To you therefore, conjointly with the distinguished individual, whose name appears in a preceding page, I dedicate this work, and feel honoured in being enabled to submit my thoughts to the professional world, under the auspices of characters so distinguished for scientific acquirements.

I have the honour to be,

Sir,

Your's faithfully,

SAMUEL HARE.

PREFACE.

THE great increase of spinal distortion, particularly of late years, and its alarming prevalence at present, together with the various and discordant opinions which have long existed as to the causes of the disease, and the most efficacious plan of treatment, will, it is presumed, furnish a sufficient apology for the publication of another treatise on the subject.

The author's attention has been particularly directed to the study of this disease, from the circumstance of his having been, some years ago, afflicted with a morbid sensibility of the spine, during the progress of which, his sufferings were very considerable, and necessarily productive of great inconvenience. The facts and observations which he now submits to the consideration of his medical brethren, are the result of careful investigation, both as respects his experience in his own case and in those

of the patients who have been under his care. Having had, in the course of a long continued practice, (nearly forty years having elapsed since he first entered the profession,) abundant reason to conclude that his opinions and consequent mode of treatment are founded upon correct principles; and being able, moreover, to record what may be considered surprising instances of success, even in cases of the worst description, he is led to conclude that it would be neglecting an obvious duty, were he longer to refrain from giving them publicity. Some of the most important of these cases are detailed in the course of the volume, and he is inclined to anticipate, that they will be perused with some degree of interest by the profession, and also by those who are suffering from the baneful effects to which they refer.

In treating of the causes of distortion, he has endeavoured to impress upon the minds of his readers the indisputable fact, that the principal source of the production of one species of the disease, and that the most common, the lateral curvature, is to be attributed to the improper adaptation of modern female attire, and more especially, to the injurious pressure occasioned by the excessive constriction of corsets: with a view to make this still more apparent, he has given a brief, but comprehen-

sive sketch of the anatomy of the spine and chest, an attentive perusal of which will, he hopes, enable the non-professional reader easily to understand the manner in which the injury is inflicted. It is to be hoped, that the repeated admonitions and warnings which have, from time to time, been given by medical men on the pernicious tendency of the prevailing custom of tight lacing, will, at length, have some effect in opening the eyes of young females and their mothers to the danger of the practice.

In that part of the work which treats on excurvation and incurvation, the author has considered it unnecessary to enter very largely. There is much in each species that is of a similar character, and therefore, after having given a full description of curvature in general, and lateral in particular, it was less necessary to enlarge on the other species separately. Though they do not all originate in the same cause, yet their symptoms and the usual train of suffering are very similar, and the treatment they require is, with the exception of different mechanical adaptations, for the most part, the same.

In the chapter on treatment, which will be regarded as an important part of the treatise, the author has considered it requisite to be somewhat particular in his directions: in the part relating to mechanical treatment, he

has given a description of an apparatus, which he has found of the most decided advantage in the various cases of spinal affection which have come under his care.

The chapter on spinal irritation, under which term are included those affections of the spine which have their origin in nervous irritability, and which, though not always accompanied with deformity, are yet highly susceptible, and occasion mental and corporeal suffering of a very peculiar, disagreeable, and painful nature, can scarcely fail to be interesting to such as are unhappily under the influence of such a morbid state.

For the reasons therein assigned, a concluding chapter or appendix has been appropriated to the consideration of pulmonary consumption. The writer wishes to draw the attention of the profession to this, in consequence of his having noticed the decided advantage attending the use of the apparatus in cases where there was strong reason to apprehend tuberculous disease of the lungs.

The engravings, which are inserted at the commencement of the chapters on the respective species of the curvature to which they refer, and which are intended to illustrate the disease and its treatment, have been executed with the greatest care, and may be altogether

relied upon for their fidelity.* The surprising improvement they display in the contour of the figure, will be the best criterion of the merits of the treatment under which such favourable results were obtained.

In offering this little work to the public, the author can truly affirm that he wishes the labours of others, no less than his own, to receive that deference and encouragement to which they are entitled. His object has not been so much to produce a large book, as to give a full, though condensed, account of the nature of the disease and its remedies; in doing this, he has endeavoured to touch on every essential particular;—some may, perhaps, think with too much minuteness—while others may imagine he has been too concise.

In respect to the execution of his undertaking, he would bespeak the candour and indulgence of the reader. The avocations of a busy life have left him little leisure for its composition; he has only been enabled to devote to it small portions of his time taken from more urgent and pressing duties. He does not, therefore, think so highly of its performance, as not to be conscious that the critical reader may find in it some faults and imperfections. Per-

* To ensure this, not only the drawings, but the casts themselves, were sent to the Engraver.

haps, in some instances, there may be in the expressions, a similarity of language or of opinion, for the writer felt loth to destroy the force of facts for the inferior purpose of critical nicety, thinking it better to incur the risk of repetition, rather than fail to place an important truth in a prominent point of view; hence, public utility, rather than literary embellishment, has been his aim,—being anxious, by every means in his power, to effect a diminution in the sufferings of a large and interesting class of society, whose condition, as regards the disease under consideration, he cannot but consider as capable, in most cases, of complete and permanent cure, and in all, of great and satisfactory amelioration.

26, *East Parade, Leeds,*
29th September, 1838.

CONTENTS.

Chapter III.

Chapter IV.

Chapter V.

Chapter VI.

Chapter VII.

Chapter VIII.

Chapter IX.

Chapter X.

INTRODUCTION.

THE human body exhibits an indubitable evidence of consummate skill. The more attentively its component parts are studied, the more deeply will the conviction be felt, that it is the production of a Being of infinite power and wisdom.

Nor is the goodness of the Creator less conspicuous than his other perfections. The body is as perfect in its design, as it is wonderful in its formation; it is not only pre-eminently distinguished for the symmetry of its proportions and the excellence of its mechanism, but also for its adaptation to the convenience, the comfort, and the enjoyment of its possessor. None but a Being, whose essential attribute is boundless beneficence, could have originated a performance so benevolent and complete.

In the splendid chain of animated existence unfolded to view by the master-hand of nature, Man occupies the highest position. Our view is indeed limited in its range, and obscure in its perception; nevertheless, it exhibits an almost endless variety of beings, rising one above another in the scale of progressive gradation; dis-

playing different degrees of corporeal and instinctive excellence; and terminating in himself, as vastly superior to the rest in intelligence, and as the delegated master of them all. Whatever, then, materially affects the welfare of a being so eminently distinguished by his Maker,—whatever tends, in an especial manner, to meliorate his condition and promote his happiness,—must be considered as all important, and worthy the attentive consideration of every rational being on the great theatre of the world.

In its natural state, the state of health, this grand animated machine performs, with ease and freedom, all the various operations of active life; and, when not enfeebled by disease, disfigured by intemperance, or injured by improper management, displays the highest degree of vigour, grace, and beauty.

Possessed of a frame so admirably adapted and kindly contrived, how much is it to be lamented, that man, either through ignorance or folly, should so often be instrumental in causing the derangement, and defacing the beauty of such excellent workmanship. He does not in general act thus from deliberate choice—he does not, knowingly and intentionally, prefer pain to pleasure—disease to health—misery to happiness; inadvertency, and the want of more general information on the privileges and consequent duties of existence, are the primary sources of these frequent errors.

Man is not naturally indifferent to his own welfare, and that of his species;—but he is, emphatically, the creature of circumstances. His ideas, his wishes, his pursuits

are powerfully influenced by the position in which he happens to be placed. His temper, disposition, and indeed his entire character receive a tinge from those of the individuals by whom he is more immediately surrounded. He is too apt to be swayed and governed by the customs and opinions that are prevalent around him.

Many noxious practices are eagerly followed by the multitude, for no other reason than that they are generally adopted, without a thought being devoted to the consideration of their expediency or usefulness. But there can be no doubt, that there are numbers in the world, who would have sufficient resolution to emancipate themselves from such unnecessary thraldom—such self-imposed fetters, were they fully aware of their nature and tendency.

These remarks, though obviously applicable to numerous other diseases, have a particular reference to those of the spine.

In tracing the origin of spinal distortion, an evil much more prevalent, particularly among the female sex, than is commonly imagined, an attempt will be made to point out the injurious and sometimes fatal effects of the prevailing mode of fashionable attire. Fashion is ever characterized by its fondness for extremes—and all extremes in the article of dress, are, in some respects, prejudicial to health, and are even sometimes productive of extensive mischief and serious distress.

That the mode and materials of dress have an intimate connexion with these subjects, will, it is presumed, be rendered sufficiently obvious by the arguments adduced in the

following pages; and particularly when it is clearly understood that one of the principal causes of curvature of the spine, now so alarmingly prevalent, is the use of improper stays and the lacing of them to excess.

The enjoyment of a sound state of the constitution, and its necessary concomitant, good health, is the greatest sublunary good. Destitute of this paramount, this master blessing, all other advantages lose their sweetest relish, and become, comparatively, joyless and insipid. What does it avail the sick to possess all the gaieties and splendour of affluence? they cannot, of themselves, remove disease, or alleviate pain; nor communicate that tone and buoyancy to the spirits, which the poor but healthy labourer enjoys amidst all his toil. Equally impotent are the dignities of rank and station, to confer immunity from the casualties and sufferings attendant upon the common lot of human-kind. Nor does disease pay any deference to distinctions of this nature, which are powerless in shielding the possessors from its indiscriminating attacks. Hence, it ought to be a source of constant satisfaction to the poor, amidst all their sufferings and apparent inferiority in the general distribution of temporal happiness, (often more apparent than real)—that, in the most essential and truly valuable blessings, all ranks of mankind are much upon an equality.

Has the great Creator then displayed such amazing knowledge, power and goodness in the formation of the body he has bestowed on man, and shall not he, on whom so rich a gift is conferred, proportionably value it? Ought he not carefully to abstain from whatever is injurious to

it? Ought he not, by every means in his power, to seek its preservation and to promote its welfare?

That department of physiology which comprises the promotion and preservation of health, commonly expressed by the term, Hygiène, is as yet but very imperfectly understood by the generality of mankind. An extensive field of usefulness is here presented to the mind of the philanthrophist, when we consider how much yet remains to be done, by means of the diffusion of plain, practical information of this nature, to enable the great bulk of mankind duly to appreciate their own interest. It is by the accumulation of experience and observation throughout succeeding ages, that a valuable store of varied knowledge is produced, by which mankind obtain a gradual increase in such practical measures as are best calculated to effect their comfort and happiness.

In presenting this little work to the profession, the author is influenced by a desire to contribute, in some small degree, to the efforts of the humane and intelligent, in their laudable endeavours to benefit their fellow-creatures; and by the pleasing anticipation, that his mite will not be altogether unacceptable. It assumes, indeed, no lofty pretentions, it arrogates no exclusive merit—it founds its claim to public acceptance and favour on its motive and tendency,—its design being to promulgate some useful and important truths, in a plain and familiar manner.

The writer who labours to induce mankind to pay proper attention to the subject of health, has the satisfac-

tion to reflect, that he advocates the cause of the happiness and virtue of the human race, because health is most fully enjoyed by the temperate, the active, and the moral. To recommend mankind, therefore, to study how best to attain and preserve so great a blessing, is to allure them into the paths of morality and virtue, and consequently, to insure their happiness. And as education becomes more and more extended, and knowledge, in consequence, more widely diffused, this branch of information, as well as others affecting the true interests of the great family of man, will doubtless be more generally cultivated, and therefore better understood.

Rapid advances have, particularly of late, been made in the circulation of general information;—its attainment is gradually becoming more easy—Mind will ultimately predominate over all the obstacles that retard its progress; and its possessor, feeling the superior advantages resulting from its culture, will redouble his exertions in the acquisition of solid information—will become more intellectual, and thus attain a more elevated rank in the scale of existence.

CHAPTER I.

CAUSES OF THE DISEASE.

SPINAL diseases originate in a variety of causes. Among the principle may be enumerated,

1. The injudicious management of infants, children, and those of somewhat riper age; i. e. throughout the whole period of growth.

2. Impropriety of dress, and want of sufficient exercise, more especially in reference to young females.

3. Inattention to the state of the digestive organs, and to the general health and vigour of the body.

Other minor causes, accessory to the production of the deformity, will be discussed in the progress of the work. They are such however, as will seldom be able to effect much mischief, unless the constitution be previously in a state of disease. The great predisposing cause is a deterioration of the health, arising either from congenital organization, or in consequence of some of the infantile diseases, which, not having received requisite attention, have left the body in a debilitated state.

SECTION I.

MANAGEMENT OF INFANTS, ETC.

When it is considered that the infant contains the elements of the future man, and that the subsequent welfare of the latter, as respects good or bad health, enjoyment or non-enjoyment of the great boon of existence, depends mainly upon the attention which is paid to the first stages of vitality, it will readily be conceded that the subject is one of no ordinary importance. It involves considerations which have a continued and influential effect on the whole period of human life; even the duration of that life is more dependent upon the proper management of infancy and childhood, than is usually supposed. Diseases contracted at that period, and not effectually cured, exert a morbid influence on the whole of life,—embittering its condition, and rendering it more liable to be prematurely destroyed. A prudent architect in constructing an edifice, is especially careful that the foundation be made strong and efficient, in order that the superstructure may be reared with safety: and shall the groundwork of the noble fabric of life be deemed less worthy the assiduous care of those under whose superintendence it is placed? Shall the erection of the great structure of human existence be considered of less value and importance, than that which is inanimate and void of sensation?

The mortality which prevails during infancy, to an extent vastly disproportionate to the other periods of life, is, notwithstanding the advance of medical knowledge, and the general introduction of vaccination, still so large, as to call for the serious consideration of parents and the profession.* And though this disparity may not be so great as in former times, still the period under consideration is a critical one, and one of deep solicitude; and any suggestions, which will be calculated to smooth the path of duty, and render its performance more agreeable and secure, cannot but be received with deep interest by the anxious parent.

FOOD.

THROUGHOUT the whole range of animated existence, the young of the human species is the most helpless, and continues longest to require assistance; among no other animals is there so great a mortality during infancy. These facts show in the most forcible manner, the necessity of well directed parental tenderness and care. The love of offspring is a feeling so deeply implanted in the human breast, that there are very few who do not wish to perform their duty in this respect. The neglect of it arises more generally from defective information, than from want of inclination. Viewed in the

* From the abstract of the parish register for the United Kingdom, for 1831, printed by order of the House of Commons, 2nd April, 1833, (vide vol. 3, page 488,) it appears—that out of every thousand who died during eighteen years,—1813—1830, —345 were under five years of age—i. e. one third and seven sixty-ninths.

light of a great, important, and universal duty, the proper discharge of the necessary office of NURSING, is imperative on all mothers who are able to perform it. The future comfort and welfare of the individual who is the subject of it, depends much on its efficient performance.

To the tender infant, a supply of food is furnished exactly suited to the nourishment of its delicate frame—a frame comparatively feeble, yet containing within itself the elements of future strength and stability. Unquestionably, the mother's milk is the best, and should be the only nourishment of an infant, until it acquires teeth for the mastication of solid food. Instances rarely occur of the failure of an adequate supply of this nutriment, when the mother possesses tolerable health, and lives in a proper manner. In cases where the milk of the mother, or that of a healthy nurse, cannot be obtained, recourse should be had to that description of aliment which bears the nearest resemblance to it. In the first instance, barley water, with a small proportion of fresh cream, sweetened, and administered through a suckling glass, is one of the best substitutes,* and should be varied as may be deemed necessary, according to the directions of the medical adviser. In a more advanced period, preparations of bread may be made use of, but it ought to be unfermented,—biscuit powder is used by many, and is perhaps the most proper.

Every thing that is calculated to irritate and disor-

* Burns, recommends an equal quantity of new made whey and cows milk, a sixth part of fresh cream, and a little sugar.—Principles of Midwifery, 6th Edition page 601.

der the stomach and intestines should be carefully avoided; for if articles of this description be attended with destructive effects to the body, when full grown and robust, how greatly must the evil be increased, when the recipient is but just commencing its career of life, and all its organs and functions are immature, and easily susceptible of derangement and injury. The inconsiderate use of opiates and stimulating liquors is highly reprehensible; such pernicious expedients may indeed produce a temporary respite for the jaded and weary nurse, but the repose they procure for the infant is unnatural, as is sufficiently indicated by the convulsive starts, the raised and quivering eye-lid, and the irregular motions of the muscles. Another very common practice, and one equally deserving censure, is that of OVER FEEDING.

If we direct our attention to the operations of nature, we shall find them always executed with unerring precision,—her indications are, on reflection, always clear and easy to be understood. In all our proceedings, we have only to follow her obvious dictates, and to keep within the bounds of reason:—whilst we do this, we shall rarely err, but if, as is too frequently the case, we act in opposition to her admonitions and disregard her warnings, we shall, assuredly, bring upon ourselves disappointment and regret.

Both as it respects children and adults, she is an unerring guide in this, as in other cases, and will not fail to indicate, when sufficient nourishment has been received: it is possible, and indeed not unusual, for these indications to be slighted, and a fictitious appetite induced,

the indulgence of which, particularly in infancy and declining years, invites or facilitates the approach of disease and often contributes to shorten life.

There can be no doubt that man, during the greater portion of his life, consumes much more, both of solid and of liquid food, than is necessary for the due maintenance of health and strength,—nay in many instances, under a mistaken notion that he is thereby promoting the energy of his physical powers, is actually doing violence to his constitution, and curtailing the natural period of existence.

In reference to the infant, it should be remembered, that not having yet attained the faculty of speech, it has not the same means of denoting when it has had a sufficient supply, as is the case in childhood and youth; and even the latter, unless subjected to some salutary restraint, will often, by eating to excess that which pleases the palate, so overload the stomach as to occasion a temporary derangement of the health. Children have not the same experience to guide them in this respect as an adult, neither have they occasion for the same reason, being under the care and control of those who ought to prevent their acting wrong or receiving injury. By improper indulgence they are often induced to eat to excess;—their stomachs are distended and consequently weakened, and the seeds of disease are thus thoughtlessly sown by those who vainly imagine, that the means they are using are calculated to promote the growth and vigour of their charge.

It may further be remarked, that a very common

practice, immediately on a child's beginning to be uneasy or to cry, is, to attempt to appease it by giving it food. A healthy child, when properly nursed, will seldom cry. It will generally be found, that when children become troublesome in this way, they are at the time in a state of suffering, either from some derangement in their digestion, some disagreeable restraint or annoyance in their clothing, or occasionally from the want of sustenance, but their uneasiness is attributed to the last cause much oftener than it ought to be; the cause being removed, the distressing cry, being the only means they possess of making known their wants or sufferings, will immediately cease. Children, when very young, are apt to acquire a habit of eating their food too quickly or eagerly, particularly fruit and other articles of which they are fond; mastication is thereby imperfectly performed, digestion impaired, and the health consequently injured.

EXERCISE.

WIDELY different is the physical state of an infant, from that of an adult; the newly formed bones of the former are soft and flexible, and may easily be made to assume any form, especially when the body is in a diseased state. This accounts for the common origin of such irregularities of form, as are not congenital, but occur at an early period of life. In proportion, therefore, to the delicacy of the infant, will be the care required in its rearing. Much has often been effected in this way by constant and

persevering attention; and many weakly and unpromising children have, by judicious management, been raised to maturity, and have passed through life in the enjoyment of a considerable share of health and vigour. A finely formed body is favourable to the enjoyment of sound health. Every one is struck with the commanding figure, the graceful appearance of a person so formed, but few enquire into the reason why all are not so gifted. If parents would have their offspring free from personal defects, if they would have their limbs moulded into the form indicative of grace, activity, and strength, they must commence their attention to them from the time of birth; and although they may not always succeed in securing for them the highest state of physical perfection, yet they will generally be able to effect such an improvement in their constitution, as will form the basis of future health. Children should not be too early set upon their feet, but should rather be placed on their backs upon the floor, that they may exercise their limbs with freedom; the former practice is a frequent cause of malformation in the lower extremities. Especial care should be taken that the spinal column, so tender in young children, may not take a wrong direction. The manner in which a child and especially a delicate one, is suffered to sit on the nurse's arm should be carefully attended to; and until it have acquired sufficient strength to keep itself erect, its back ought to receive proper support. By being suffered to sink into a crouching posture, with the head and shoulders inclining forwards, and the back projecting, a bad habit is soon contracted, which often leads to distortion of the spine. Neither is it in the arms alone, that this attention is required; the effect is

not less injurious, if the child be suffered to sit long in a chair, as, when fatigued, it will naturally adopt that position, which at the moment affords most ease. Here, it may not be irrelevant to notice the very common and reprehensible practice of raising a young child by its arms, in such a manner, that the sides of the chest being pressed by the hands, or rather the knuckles, of the nurse, its cavity is diminished, the sternum or breast bone pushed out, and that deformity produced in delicate children, commonly called "pigeon breasted."

A too softened state of the bones, so common with children born of unhealthy parents, reared in unhealthy situations, or improperly managed in their infancy, is the principal cause of that peculiar condition of the body, known by the familiar epithet of RICKETS, as a a great predisposing cause of distortion of the spine. Under these unfavourable circumstances, the organs of nutrition cannot efficiently perform their functions, the circulating system is inadequately supplied with the requisite materials for the deposition of the earthy part of the bones, which, from their softness, are incapacitated for sustaining the superincumbent weight.

In all cases where a child is delicate and puny, and supposed to suffer under the effects of diseased organization, when the symptoms are such as denote weakness of the back, and consequent incapacity to support the weight of the head and shoulders, it ought without delay, to to be minutely examined. It cannot be too forcibly or too frequently impressed upon the minds of parents and others who are entrusted with the care of children, that this disease,

if attended to on its first appearance, admits of an easy and speedy cure, but that the longer it is neglected, the more tedious will be the treatment, the greater the suffering, and the more dubious the result. The propriety of this caution is the more necessary, as cases are of frequent occurrence, where, by early investigation, incipient curvatures of the spine have been detected, which were not even suspected to exist. Important as the subject must, on consideration, appear to be, it is obvious, that the periods of infancy and childhood do not generally receive that degree of attention, which they so urgently require. Does the horticulturist, in the prosecution of his calling, find it necessary to be unremitting in his attention to his young plants? do the sportsman and others, engaged in the rearing of a superior breed of the irrational animals, find the advantage of superior care and assiduity in training; and shall man be indifferent, as to the means of effecting improvement in his own species? Surely, if the remark of a celebrated poet, that

"The proper study of mankind is man,"

be allowed to be correct, whatever has a tendency to meliorate his condition, and to effect an improvement both in his mental and bodily constitution, should be carefully studied. Much, however, might be effected in the improvement of the human race, as it respects its corporeal state, were the public attention more forcibly directed to the subject. The preceeding remarks, will, it is hoped, be instrumental, in some degree, in effecting so desirable an object.

In the selection of suitable persons to discharge the humble, but important, duties of the nursery, regard should be had to such as possess adequate strength, to enable them to give the child sufficient exercise, by keeping its body in almost constant action during its waking hours; this should be done as much as possible in the open air. A decided preference should be given to girls of good temper, and a lively disposition, and particularly to those who are fond of children, and in whom, there is reason to believe, full confidence can be placed.

CLOTHING, TRAINING, ETC.

THE condition of an infant is one of deep interest;—its extreme helplessness and its innocency, give it strong claims upon the humane, for protection and support; if its state be such as to excite the compassion and sympathy of an indifferent spectator, how greatly must these feelings be augmented in the breast of a parent, and especially that of a mother. Language indeed would be almost inadequate to the task of fully describing the close affinity, the intimate connexion, the countless ties, that bind the mother to her infant offspring.

What tender solicitude is awakened in her bosom for its welfare,—what anxiety does she manifest to avert from it every impending evil,—what misery she endures in its illness, what joy she experiences in its recovery;—gladly would she, in most instances, sacrifice her own ease and comfort to promote its good;—nay, under cir-

cumstances that seem to her to require such a sacrifice, she would cheerfully purchase its safety, at the costly price of her own life, and were her knowledge and ability equal to her affectionate regards and wishes, it would experience an immunity from every ill.

Numerous are the diseases engendered in children by neglect and mismanagement, such as scrofula, rickets, &c. These are often imputed to the impure air of crowded cities and towns. No doubt this has great influence in the promotion of disease, but in almost every instance, it will be found, on close investigation, that the digestive organs are primarily in fault: these disorders of the stomach and intestines are evinced by defective, and in some cases, voracious appetite—large and tense abdomen, a foul tongue, pale and furred—retarded dentition, &c.

Nothing is of greater consequence in the management of children than that they should be kept thoroughly clean. Perhaps in most instances, and more especially in cold weather, the use of tepid water is the best for this purpose; in this they should be immersed, or well sponged, morning and evening, and rubbed thoroughly dry. How important to a parent, must every thing appear, that affects the health, the comfort, and the welfare of a child! Its food and clothing in particular, become objects of interest, because, upon their proper management and adaptation, depends the due developement of its bodily frame. The body of an infant is feeble,—its clothing therefore should be soft, that it may not chafe its delicate and susceptible skin. Its bones, being in their incipient state, are tender and immature,—its dress, therefore, should

be loose and pliant, that they may not sustain any injury from pressure or restraint. Its joints, muscles, and tendons are yet weak, and require exercise to strengthen them; its attire, consequently, should be simple, so that it may readily admit of the greatest ease and freedom of motion.

When the infant passes into the child, these qualities should still be preserved, though they will admit of some little modification. If the smiling infant be an object of care and solicitude to its parents, scarcely less so is the lively and active child; its limbs having now obtained a considerable degree of strength and firmness, nature prompts it to a variety of vigorous action, in order that it may make the necessary increase in size and strength. Its clothing, then, should be adapted to encourage and assist nature, in carrying on her beneficent designs;—the feet should not be cramped by shoes of too scanty dimensions—the circulation of the blood should not be impeded —nor the symmetry of the body destroyed by any undue restriction. Socks or half-hose should be used in preference to stockings, the tying of which may not be without injury:—the different articles of apparel should fit easily to the body, *and be frequently renewed, to suit the increase of growth.*

Although clothing should be sufficiently abundant to protect the body from the injurious effects of cold, yet a superfluity should be avoided; the latter produces delicacy of constitution, and of the two extremes, too much is worse than too little.

Advancing another step in the career of life, we come next to the boy and girl, taking these terms in their more restricted sense, as signifying the period that elapses between childhood and youth. Perhaps at no stage of its life, is the child more insinuating,—at no season does it maintain a stronger hold on the parent's heart,—on no occasion is it an object of greater interest, than when it can run by that parent's side, and is just beginning to give utterance to its simple thoughts, and to express its fears, its wants, its wishes, in the unaffected language of innocent childhood. But although this is a period of great interest, yet the one which succeeds it involves duties of still higher moment.

It would assuredly be a great improvement in the practice of modern education, were children properly instructed in the first principles of what may be called the SCIENCE OF HEALTH. As much of their future comfort and usefulness depends upon the vigour and energy of their physical powers; they should early be taught what is favourable, and what inimical, to the attainment and preservation of sound health. The unhappy effects of intemperance and sloth should be clearly pointed out to them; as well as the generally happy results of activity and temperance. Cases of suffering from ill health, when the consequence of previous, though perhaps distant neglect and misconduct, should be exhibited to them, as affording forcible reasons why they should endeavour, in early youth, to lay a foundation for future years of enjoyment and happiness.

There is a vast difference in the original organiza-

tion of children. It cannot but be supposed that the offspring of mothers who have themselves been the subjects of disease, with all its attendant weakness, must, in some measure, participate in the parent's infirmity, and be less strong and robust than those born under more favourable circumstances. They will require greater care in their general training; be more subject to the diseases incident to children; more troublesome in nursing, and longer before they attempt to walk. On the other hand, the case is widely different with children of hardy peasants, whose employments expose them to full exercise in the open air, and thereby render their bodies strong, active, and muscular; whose wives are exempt, by their poverty, from the thraldom and mischief of stiff stays and tight lacing, and the baneful diseases that follow in their train. The children of such persons will, evidently, possess a more perfect organization, their bodies be altogether stronger, and consequently will require less nursing; they speedily show symptoms of activity, they are more lively also whilst in the arms, they are able in a very short time to support themselves, and early enjoy all the activity natural to infancy. This is no exaggerated picture, the contrast is obvious and striking, and must force itself upon the attention of parents.

From the preceeding remarks it will readily be seen that the first stages of life possess in every point of view, great interest and importance. In proportion, generally speaking, to the care bestowed upon infancy and childhood, will be the stability and comfort of maturer years. Let parents consider this; let them, as the natural and

responsible arbiters of the future destinies of their, as yet, helpless offspring, diligently acquaint themselves with those subjects which so imperiously demand their attention. Then may we hope, that the rising generations, as they successively appear on the great stage of human existence, will ensure a progressive improvement, both in corporeal and mental excellence.

SECTION II.

ON IMPROPRIETY OF DRESS.

MALFORMATION is the product of civilization, or rather of fashion; in communities in a state of nature, it is scarcely known. The wild, untutored savage, unfettered by the tyranny of custom, ranges in all the freedom of unsophisticated nature, and acquires that activity, vigour and muscular energy, which are the usual attendants on bodily exertion, the enjoyment of pure air, and exemption from undue restraint. In proportion as nations or communities emerge from a state of barbarism, a taste for finery, a love of embellishment, a fondness for admiration ensue; there is nothing directly culpable in this; there is no crime in dress being made neat, becoming, or elegant. The Almighty has clothed all the works of creation with incomparable beauty. He has invested every thing with the inexplicable charm of variety and loveliness. When properly examined, there is nothing, however humble, calculated to excite unpleasant feeling; there is nothing offensively gaudy; there is nothing superfluous or absurd; from the inconsiderable leaf that quivers in the breeze, to the most stupendous planet rolling in the immensity of space, there is throughout, one continued display of perfection. Assuredly, then, there is nothing reprehensible in the use of elegant or even fanciful apparel: it is in its abuse that the error consists, as when it

has a tendency to be prejudicial to the health of the wearer. The originators of fashion, however, are rarely influenced in their inventions, by the considerations of health, fitness or propriety; they are more frequently governed by an overweening anxiety after what is novel and eccentric. No wonder, then, that the extremes of fashion are so often inimical to the enjoyment of comfort and convenience.

By such inconsiderate disregard to the plain indications of nature, we have an instance, and a most pernicious one, of the inconsistency of mankind. Strange! that human beings, endowed with reason, should so thoughtlessly follow a fickle, arbitrary, and self-created power, that leads them to displays of the most fanciful, I had almost said, ludicrous kind. It were well if the evil here complained of, were deserving censure merely on account of its extravagance and inconsistency: it assumes, however, a much more frightful and alarming aspect, and is too often the fruitful source of debility, suffering, and deformity. For, be it remembered, that to it, chiefly, are to be ascribed, as an influential cause, those morbid affections and irregularities of the spinal column, which when accompanied with debility of constitution, produce nervous irritability, dyspepsia, and a numerous train of other maladies that embitter life.

The empire of fashion exercises over its subjects unbounded sway, and incites them into excesses, which, in their more thoughtful moments, they could not but condemn. It possesses a sort of magic influence, that, for

the time, captivates the fancy of its votaries, deprives them, in some respects, of the proper exercise of their reasoning powers, and leads them to admire as beauties, the most palpable inconsistencies. Instead of adapting the various articles of clothing to the form or shape of the figure, which, when not injured by injudicious treatment, exhibits a striking model of symmetry and beauty, the body is thoughtlessly made to form itself to the whims and caprice of dress, proclaimed, by the sovereign goddess of fashion, as elegant and becoming. Notwithstanding, however, the prevalence of this overwhelming and all engrossing influence, persons of refined feeling and good taste will always regard that attire as really most graceful, attractive and becoming, which is adapted to the figure, the motions, and the convenience of the body.

In hazarding the foregoing remarks, the author has no wish to make use of expressions that may be deemed unnecessarily harsh or severe. He is satisfied that few will deny the evils resulting from a too ready compliance with the present mode of dress; and his only desire is, to bring the subject before the notice of the profession and the public, in such a manner, that females may not remain ignorant of that, with which it is their duty to become acquainted.

STAYS.

The use of the zone or girdle, the type of our modern stays is of very ancient origin, and it is probable that in all ages of civilized life, the sex has used some

article of this kind, from an idea that it was convenient for the support and graceful carriage of the figure. On their first employment, stays were of simple construction, and were destitute of their present objectionable properties, being resorted to, almost exclusively, for the purpose of suspending from them other articles of dress in an easy, flowing and graceful manner, and whilst restricted to such uses, and not drawn unnecessarily tight, would not be likely to be attended with any mischievous effect. It is more than probable, that almost all the errors and foibles of mankind have had their rise from some motive or notion, not culpable in itself, but deserving censure only from being carried to excess; thus the unnatural construction and excessive compression of stays, have lead to an accumulation of bodily suffering and deformity, of the extent and consequences of which, few are fully aware. There is no satisfactory reason why the attire of females should not be conformable to the preservation of the health, and the consistent display of taste and ornament, and, no doubt, it was from a supposition that the personal appearance would be improved, that these articles of dress were first invented and used.

There are, at the present time, thousands, who, ignorant of the misery they are inconsiderately providing for themselves, are daily sacrificing health, and not unfrequently life, to the mere vanity of desiring to possess, what a vitiated taste calls "a fine figure." That women should experience a feeling of support from the use of stays, after wearing them from early childhood, admits neither of doubt nor surprise; the only wonder is, that they should feel comfortable without them, du-

ring the hours of repose. Our promenades, public streets, and places of fashionable resort, afford abundant evidence of the sad effects resulting from the almost universal prevalence of this baneful practice. The absurd notion, that a woman is more beautiful with a remarkably small waist, ought long ago to have been exploded;—as well might we admire as beauties, the flattened heads of some tribes of Indians, or the extremely contracted feet of the Chinese. Genuine taste admires no such eccentricities.

Modern stays are constructed with so little attention to the form of the body, that the pressure is the greatest upon the lower part of the chest, which is naturally the widest, whilst they have the most freedom at the upper part, where its diameter is the smallest; thus, in effect, inverting the order of nature, and causing a complete transformation of this important portion of the body, by making its base uppermost, and its apex downwards; they are also made so long as to cause injurious pressure on the pelvis, the crest of the ilium being, not unfrequently, turned inwards.

The evils resulting from tight lacing are numerous and appalling; by the pressure of the stays, the functions of the vital organs are injured, and the whole frame impaired; the bones of the chest, being contracted, prevent the free action of the lungs; the blood, not being sufficiently oxygenized by respiration, becomes deteriorated, and consequently the various systems of the body suffer either in structure or function. Palpitation of the heart, increased circulation and difficult respiration are usual symptoms attendant on chronic cases. The pressure and

confinement of stays also produce great derangement of the functions of digestion, preventing the stomach from dilating on the reception of food, and also the proper peristaltic motion of the intestines; and, in some extreme cases, entirely changing the form and position of the viscera, which are not unfrequently pressed down to the lower part of the abdomen. Hernia also, there is reason to believe, is often produced by this improper pressure.

As the bones and muscles continue to increase in growth until the period of puberty, they are, by the continual pressure and rigidity of stays, which scarcely allow of lateral, or indeed any other, motion, prevented from becoming fully developed; and the pressure is not unfrequently so great as to displace the bones from their natural position, the sternum being in some cases forced inwards, in others the reverse, whilst the conical form of the chest is, as has already been stated, inverted.

The author has made repeated measurements with a view to compare the circumference of the waist and the width of the stays of a great number of females, and has found so great a difference between the former and the latter, as to be convinced of the serious injury which must result; this is an experiment which all parents have in their power to try, and the correctness of which they can ascertain.* Need we, then, be surprised, that the female figure is so frequently, and so lamentably, deformed? Rather ought it to excite our astonishment, that so many, under such untoward circumstances, should escape the consequences.

* The measurement should be made in the morning, before dressing.

Some unfortunate sufferers, by placing soft pads in the lateral curve, frequently pass years, without its being known that such distortion exists,—but their lives, under these circumstances, must be spent in a state little short of misery, on account of the languor, debility and mental as well as bodily suffering, which they endure.

Equally, perhaps more objectionable than stays, are the various instruments sometimes made use of; —as, for instance, backboards and braces, education chairs and other contrivances to amend or protect the shape, which, so far from improving, they tend ultimately to destroy; indeed all such inventions, so far from being useful in the prevention of the deformity, are absolutely injurious. Parents should acquaint themselves sufficiently with anatomical and physiological science, to enable them to comprehend the objectionable nature of these and similar devices; they would then reject the use of such disagreeable restraints, and clothe their children in dresses, which would press lightly and equally upon every part of the frame.

If tight lacing is attended with such disastrous effects to young females and women in general, how greatly must the evil be increased when practised during the period of pregnancy. Whoever attentively considers how much the future health of the offspring depends upon the mental and physical condition of the mother whilst in this state, must be convinced that all undue compression of the body is highly improper. It is as inimical to the feelings of the mother, as to the future welfare of the child, not only impeding the full deve-

lopement of its members, but rendering its birth more dangerous in proportion as the circumference or diameter of the pelvis is narrowed; modern stays, by extending so low as to embrace the hips, have a direct tendency to produce this effect. The uterus, as it increases in bulk, necessarily elevates the viscera, which, being forcibly pressed by stiff, unyielding stays, must, of course, cause great inconvenience to the mother. Defective secretion of the milk, the food designed by nature for the infant, and so essential to its preservation and nourishment, may probably, in some cases, arise from the same cause. The difficulty of breathing, a frequent complaint with pregnant women, is greatly increased by the restraint in which the respiratory organs are placed by the additional restriction.

Notwithstanding all that has been said and written on the evil effects of modern stays and tight lacing, and although they have been proved, in the clearest manner, to be the most formidable cause of diseases of the spine, yet an attempt to induce females altogether to discard so common an article of attire, would be exacting more than can, perhaps, be expected. The utmost that can be hoped for is, by showing, in a plain and familiar manner, the mischiefs attending their use in the present form, to induce the sex to make such alterations in their construction, as will, in a great measure, obviate the attendant evils. The chief objects to be had in view in constructing these articles so as to be innoxious, are, to support and give grace to the person, at the same time to allow the utmost freedom of motion, the pressure on every part

being very slight, to admit of necessary extension, pliability and nice adaptation to the figure. In growing girls, instead of the stays being tightly girt behind by laces, they should be secured in front by buttons or strings; in adults, there will be no objection to laces, provided the stays, be in other respects, of proper construction, and in this case, the lacing should be in front, a strip of Indian rubber belting, about an inch in breadth, being inserted on each side the laceholes, and a similar one, of double breadth, down the middle of the back; the gussets for the part of the stays covering the hips,* and for that supporting the breasts must be made of the same elastic material; the shoulder straps should pass directly over or upon the shoulders, and be so constructed as to lie flat upon them, by being inserted obliquely into the stays. It will be a work of supererogation to enter into any details as to the material and construction of stays, further than to observe, that the fabric should be of a firm but elastic nature, and constructed so as to allow free motion in every direction The only whalebones required will be two thin ones to protect the laceholes, and two, equally thin, on each side, to prevent the stays from puckering; by these means, if the stays are at all proportionate to the size of the body, active exercise, which is absolutely necessary for increasing the strength of growing girls, can be freely used, and tight lacing will be next to impossible.

There are other portions of female dress, which are exceedingly improper, as regards their effect upon the

* It is still more proper that the stays should not embrace the hips at all.

health and form of the body; these are, the strings of petticoats, aprons &c., which are generally drawn very tightly round the waist, thus contributing to the ill effects which have been previously detailed; parents ought to be especially careful, that the articles of dress be suspended by buttons and pins, and that strings be entirely dispensed with.

A custom at present prevails to a very considerable extent, of using a leathern belt buckled round the waist of boys, when they commence wearing their clothes of woollen cloth; this practice, unless adopted with great care, has a direct tendency to produce a contracted state of the chest and upper part of the abdomen, similar in effect, though not in degree, to that produced by corsets in growing girls: it is hoped, that it is only necessary to point out the evil, and that parents will at once see the necessity of avoiding it.

SECTION III.

ON INATTENTION TO THE GENERAL HEALTH.

It has already been remarked, that the subject of health, although of such vital importance, is but very imperfectly understood by the majority of mankind. If this be correct, it follows, that many may be so far mistaken, as to think themselves in a state of good health, when they are, at the very time, the unconscious victims of disease. Allusion is not here intended to be made to maladies of the more latent kind; these may escape the observation, not only of mankind in general, but sometimes, even, of those whose province it is, more particularly, to study their nature and mode of attack. Such is the almost general ignorance that prevails in society upon subjects of *hygiene*, that even diseases of a more palpable nature often exist, without so much as being suspected. To the customary inquiries after health, it is far from being unusual to hear the reply "very well," proceed from persons, in whose countenances the eye of the experienced practitioner would detect indications, that disease was progressing,—was silently, but certainly, conveying the destined victim to a premature grave; there is something affecting and melancholy in such considerations, and they loudly proclaim the advantage to be derived from some knowledge of these important subjects.

The individuals alluded to, may not, indeed, be subject to acute pain, and are apt to consider mere freedom from pain, as a proof of the enjoyment of good health; because they are not incapacitated from attending to their ordinary employments, they do not suspect that their condition, as regards health, may be otherwise than as it ought to be. There are, however, various degrees of health; and the enjoyment of its more perfect state, as society is at present constituted, falls to the lot of only a favoured portion of the human race. This enviable condition supposes something more than mere exemption from bodily suffering,—it raises its happy possessor to the true relish and enjoyment of life. How, then, it may be asked, is a person, whose attention has hitherto been but little directed to subjects of this nature, to become acquainted with the real state of his health. Perhaps, an attentive consideration of the following interrogatories may enable him to arrive at a satisfactory conclusion. Is the body active—the step nimble and elastic—the tongue moist and clean—the skin clear and the eye bright? Is the appetite good? Does considerable exertion produce but slight and temporary fatigue,—is that fatigue soon dissipated by rest, and vigour restored to the frame? Is the sleep sound and refreshing, and does the individual arise from his repose, disposed, with lively pleasure, to commence the daily avocations of life? Are the various functions of the animal economy,—circulation, respiration, digestion, assimulation, secretion, &c., carried on imperceptibly, and consequently without annoyance? Are the spirits lively and buoyant, the mind composed and cheerful? Unquestionably, these are unequivocal

signs of sound health. Let those, who possess what thousands, however affluent, would give their all to obtain, think highly of their privilege, it is of no ordinary value;—let them be grateful for the inestimable blessing, and cherish it as that great advantage of life, which stamps an increased value upon every other created good. Let them be assured, that much, in this respect, is in their own power; good health, like most other mundane advantages, is generally to be obtained by the use of proper means; what these means are, will be shown hereafter; but, first, it may be advisable to consider that condition, which falls short of perfect health. The reader will find in the following questions, the characteristics indicative of a defective state of health. Is the body feeble and languid? Does great fatigue ensue after trifling exertion? Is the cheek pallid, and the eye void of lustre? Are the functions of the visceral systems carried on with langour, producing uneasiness, and originating sensations of a disagreeable or painful nature? Is the season devoted to repose passed in wakefulness or accompanied with unpleasant dreams, and not followed by an agreeable feeling of refreshment and renewed vigour? Does life appear a burthen, rather than a pleasure? Is there a disposition to inactivity, and a consequent disrelish for lively and spirited exercises? Is the temper fretful, and the mind desponding? Are the animal spirits depressed, and all the usual energies enfeebled and blunted?

In all or any of these instances, the inquirer may be assured, that some portion of the frame is suffering, that

some of the organs are in a state of derangement, not duly performing their respective functions, and hence there is a defalcation in the amount of physical vigour, which the constitution is formed to attain and enjoy; and the sooner this imperfection is attended to, its cause ascertained and suitable remedies applied, shorter will be the period, the individual will suffer under its effects.

It is by no means intended to assert, that declining years do not necessarily cause a deterioration of the bodily powers; the benumbing influence of age is readily admitted; at its approach there must, inevitably, be a progressive diminution and a perceptible decay of strength, activity and vigour; yet, under favorable circumstances, and when the preservation of health has been made an object of proper attention, such decay will be gradual, and ordinarily exempt from disease; even the casual observer will see this constantly exemplified around him: so far is senility from being necessarily a state of sickness, that the robust health of a hearty old age is actually attended with more lively enjoyment and even more vigour, than is found at a more early period, when the constitution is congenitally enfeebled. Numerous instances are constantly presenting themselves, illustrative of this truth. The inquiry, then, is useful and important,—how may this highest earthly good be best obtained, and how most effectually preserved? Happily for mankind, its possession is not limited to any degree of rank or station; the monarch upon his throne has no better means of attaining and securing it, than the labourer in his cottage. It

is, in a great measure, within the reach of all, and the sacrifices it requires are not costly; the principal means are temperance, cleanliness, and exercise.

The benefit of regular and active exercise in the open air, must be quite obvious; it is one of the best means of keeping the body in a state of good health. No one can doubt of its beneficial effects, if he contrast the florid cheeks of the man employed in rural affairs, with the wan aspect and care-worn features of the city artizan, or observe the ruddy complexion and athletic frames of stage coachmen, travellers and others, whose stated avocations bring them regularly and frequently in contact with the refreshing and invigorating breeze. Sufficient attention is not usually paid, particularly in crowded situations, to the ventilation of the different apartments of dwelling houses; the windows should be regularly thrown open; the linen and other articles of bed-clothing exposed, daily, to the fresh air. The air of a sleeping apartment when of limited dimensions, soon becomes impure; of this, any one may have a convincing proof, on returning to his chamber, after having been out in the open air, he will find the atmosphere sensibly deteriorated and scarcely fit for respiration; and if this be the case when occupied by a single person, how greatly must that be increased, when several sleep in the same apartment.

Cleanliness and temperance are even more essential to the enjoyment and preservation of health, than fresh air and active exercise. It is said of Socrates that he escaped the plague, when it almost devastated his native

city, by his superior regard to these cardinal virtues; of which, many of the ancient philosophers were not less eminent for the promulgation, than their love and practice; the result was, in general, an immunity from disease, a useful and happy old age, extended to a period that would almost seem incredible to the luxurious and enervated epicure of modern times. By observing from youth the habits of temperance and abstinence, the blood continues pure, and the body is free from those vitiated humours which are so fruitful in engendering or fostering disease: the well-known instance of Cornaro was remarkable for shewing the effects of abstemiousness, even on a constitution which had suffered from intemperance; by restricting himself to a very small quantity of food, of such a nature as he found by experience to be best adapted to his constitution,—by avoiding all unnecessary excitement, and every thing of an injurious tendency, he continued to surmount the dangers attendant on a weakly state of the body, and extended his life, with comfort and pleasure, to upwards of a century. All may not not be able to restrict themselves to the same rigid attention to rule and diet; but the generality of persons have it in their power to confine themselves to such food as is of a wholesome and nutricious nature, and to avoid excess. Notwithstanding all the scenes of destitution and misery which the world displays, where one person dies from actual want, hundreds perish by the use of improper and superfluous food.

Between the mind and body there is an intimate, though inexplicable union; a sympathy so close, that if

one suffer, the other must, in some degree, participate in that suffering; continued uneasiness of mind, from whatever cause arising, cannot but be productive of great disorder and mischief to the complex organization of the human frame. It speedily, in some cases almost instantaneously, exerts a baneful influence upon the digestive organs; and these, in turn, by the numerous sympathies and close affinities by which they are united, communicate their morbid influence to the system in general. One great means, then, of securing the enjoyment of a sound state of health, is to keep the mind calm and unruffled: anxiety has an insidious and morbid effect, and carries on its operations in a secret and undermining manner; whilst passion produces a more obvious effect and even sudden death. Of the advantage of keeping the mind in state of composure and tranquillity, the society of Friends furnishes a remarkable illustration; from statistical accounts ascertained by that estimable class of Christians, it appears that longevity is greatly in their favor, and this may be chiefly accounted for, by the simplicity of their dress, their great care in avoiding all undue mental emotion, their sobriety, regularity and temperance, all which virtues are decidedly favorable to health and length of years.

Many of the employments in which mankind are engaged, in their endeavours to procure subsistence, are indeed unfavorable to health in the way in which they are conducted, and to none does this remark more aptly apply, than to that numerous class of females, who, in addition to the injurious effects resulting from

their own mode of dress, as described in a preceeding section, have to practise an unhealthy occupation, extended to an undue length of time, in furnishing articles of clothing for others. This sedentary employment, of itself so unhealthy, is rendered much more so, by its being frequently pursued in crowded and ill ventilated apartments. The case is not much better in reference to that portion of the male sex, who are similarly employed in meeting the incessant demand made by the public for the various articles of clothing, which custom and fashion require. Indeed, all occupations must be detrimental to health, in proportion as they deprive the persons of the benefit of pure air, and restrict them from the advantage arising from regular exercise. It is much to be regretted that young persons of both sexes engaged in sedentary employments, do not more generally perceive the propriety of devoting the little leisure their stated avocations afford them, in seeking to neutralize their ill effects by recreation in the open air, of which a regular and persevering use could not fail of being attended with great personal advantage. But mankind are prone to bestow too little thought on this important subject, until the constitution, injured by neglect, gives them unequivocal warning of its decline, when it is perhaps too late to hope for its entire restoration.

How desirable then it is, that mankind should possess such general knowledge on these subjects, as would restrain them from such excesses of mind or body, as are prejudicial to health; the promulgation of sound and practical information would probably be the most powerful

incentive to morality, as few would be found, voluntarily to promote their own injury, especially if such information were implanted at an early period, before erroneous opinions had taken root in the mind.

Of all the systems of the body, which are conducive to the production of health or the initiation of disease, the most important is the digestive tube, with its appended organs. An attentive consideration of the process of digestion, to the illustration of which our subject now leads, will shew the propriety and truth of the preceding remarks. And here it may not be deemed irrelevant to present the non-professional reader with a short sketch of the structure and functions of this important, and, perhaps it may be said, the only universal and essential system of animal organization. The digestive apparatus may be described as a long winding cylindrical tube, running through the trunk of an animal, having greater or less dilatations in its course, and being furnished with various subsidiary organs, possessing definite functions, which may be arranged under three heads,—mechanical, chemical and vital, but none of them purely independent of each other. The first process is evidently mechanical,—the reception, mastication and deglutition of the food; these actions are performed by organs adapted to the particular kind of nutriment, and the mode of obtaining it; they consist of the mouth, with its furniture of teeth and tongue, and a beautifully-formed locomotive apparatus, for conveying the comminuted mass of food safely into the stomach, where the second or somewhat chemical action commences.

The stomach forms the largest dilatation in the course of the intestinal tube, and is generally of an oval form; its essential structure seems to be, a mucous or villous lining, surrounded by muscular fibres, longitudinal and circular, with blood vessels and nerves distributed along with these, and myriads of glands secreting a peculiar fluid, termed gastric juice, to be mixed with the food. The muscular fibres, though not under the influence of the will, give various contractile or vermicular motions to the organ, and the nerves convey vitality to it; these nerves arise from very different sources, and convey very different influences, being connected with the ganglionic, the spinal and cerebral systems; hence, arises that universal sympathy, which this organ possesses with all parts of the body. In it, the food, as before stated, undergoes a mixed chemical and vital action, not readily explained in a short sketch; the result, however, is, that the food becomes converted into an uniform pultaceous mass, named chyme;—after a time, this passes from the stomach, and the third process commences in the intestines, which, like the stomach, possess a muscular and mucous coat, with blood-vessels and nerves;—they are generally divided into two portions, the small and large intestine; the functions of the former being the digestion and absorption of food, that of the latter, the removal of effete matter from the system; in the former, the separation of the chyme into two portions,—the chyle or nutritious part and the fæcal or excrementitious portion, takes place; this is effected by the agency of various fluids, which are poured from the associated glands, particularly the bile from the liver. The chyle is absorbed by vessels called the

lacteals, with which the course of this portion of the intestine is furnished, and these, uniting into one trunk, the thoracic duct, form the medium by which new matter is introduced into the animal frame, and, having gone through the course of the circulation, is assimilated with it; whilst the excrementitious matter passes into the larger intestine, and is ultimately expelled. It will at once be evident, since the large intestine conveys the refuse matter from the system, that the greatest attention ought to be paid to the functions of this part of the tube. The appearance of the excretions will best evince whether the organs of digestion are in a natural and healthy state; indeed, they furnish the most certain criteria by which to judge; and of such importance is a close and regular attention to these particulars, that no professional attendant should be deterred, from motives of delicacy, from making himself fully acquainted with their condition; it is indeed absolutely requisite, that all persons, who wish to acquire and preserve a good state of health, should pay strict attention to the functions of the large intestine. The alvine evacuations are liable to become either too lax or too confined, and either condition, when suffered to proceed to an extreme, is productive of many diseases, and ought to be carefully guarded against; accordingly as they are of a proper or improper consistence, or as they are in excess or deficiency; as they approach to, or recede from, a natural colour, or as they are more or less fetid, will the parts from which they proceed, be judged to be healthy or otherwise.

When the digestive organs are in a disordered state,

and consequently incapable of efficiently discharging their several functions, various maladies may be expected to result; these are frequently affections of the cutaneous and glandular systems; and, when there exists a delicate habit of body, either congenital or acquired, cooperating with the other special causes of spinal disease, which have been alluded to, they will originate, or, at all events, accelerate the progress of its deformity.

The question will here probably present itself to the mind of the reader.—Does the human constitution, in its *ordinary or average* state, admit of improvement? Beyond all doubt, in most cases, it does. This is proved by the remarkable changes and improvements in the physical structure, that are effected during the system of training by pugilists, pedestrians and others, who are engaged in exercises, which require the possession and exertion of great activity and strength. Those, who are acquainted with the mode of training adopted by such persons, know well, that in the course of only a few months a most surprising alteration is effected in the appearance and vigour of those under its operation. The skin becomes bright, clear and shining; the muscles full and prominent; redundancy of fat is diminished and the whole frame put in a condition for the most effective display of agility, and the endurance of great bodily fatigue. This is produced by the co-operation of three principal means, medicine, diet, and exercise. By the use of repeated doses of aperient and sudorific medicines, the tendency to corpulency, when it exists, is reduced; in all cases, due care is taken to free the stomach and intes-

tines from noxious matter, and to keep the digestive organs in a healthy state. The food is restricted to those kinds which are considered to contain the greatest quantity of nourishment in the smallest compass; the drink is restricted to the smallest quantity, and that cold, and of the most invigorating description; it being a settled maxim, that undue drinking encourages soft and unhealthy flesh, swells the body and promotes perspiration. Daily and vigorous exercise in the open air is enjoined, at least three times a day. By means like these, the body assumes its greatest degree of firmness, and is made capable of performing feats of strength and agility, to which, but a short time before, it would have been totally inadequate. Whilst, however, the object, for which these preparatory measures are generally adopted, is justly to be reprobated, a salutary lesson may be taken from their excellent effects, which serve to show that the physical constitution of man, as it exists in its *average* state, is capable of being greatly improved and strengthened by the use of proper means.

A further question will, however, naturally be asked by the valetudinarian.—How far the physical constitution of man, *when enfeebled by disease,* is capable of restoration? To this enquiry it will not be improper shortly to allude—It is here necessary to explain that the state of constitution meant, is not merely that which may predispose or render an individual liable to an attack of disease, but includes also that in which there exists some real cause of disease. The possibility of renovating the constitution, must depend greatly upon the nature of this cause.

Is this cause from without, or from within? The nature of those which are external has already been stated in the foregoing pages; if internal, is it dependent upon structural changes, or upon a state of long continued functional disorder? Does it consist in that very general one, both as an active and predisposing cause—a more or less cachectic habit of body, or a depravation of one or more of the secretions? This, itself an effect, is by far the most general cause of enfeebled health, but it is, at the same time, one, for the removal of which, much can be done. The means which have already been alluded to, for the *improvement* of health, will, under the direction of the medical adviser, and the use of such remedies as may be adapted to restore the particular secretion which is depraved, to its healthy state, prove equally successful in effecting a *restoration* of health. The treatment must, of course, be modified according to circumstances, but it is by perseverance alone, in a graduated and well regulated system, that success can be hoped for. Indeed, there can be little doubt, if the healthy body be capable of so great improvement by the use of medicine, diet and exercise, that the diseased body will, in a proportionate degree, be obedient to similar influences.

Having thus endeavoured to trace the origin of spinal disease, it may be desirable, in the next place, to furnish the non-professional reader with a slight sketch of the anatomy of the spine, so that he will be better able to understand the subsequent part of this treatise.

CHAPTER II.

SKETCH OF THE ANATOMY OF THE SPINE.

THE spine or vertebral column, derives its name from certain projecting portions of the chain of bones of which it is composed, which form a continued range, their union being so complete, that the same term is applied to the entire projection, as is used in describing that of a single bone. This range or pillar is composed of twenty-four bones; from the circumstance of their having a kind of turning motion on each other, they are called *vertebræ*, hence, the term *vertebral* is applied, indiscriminately, with that of *spinal*, to the whole column. These bones are distinct and moveable, and, on that account are called *true* vertebræ, they are disposed one above another, and their base rests upon the sacrum, which is composed of five vertebræ united together, hence called *false* vertebræ, and which are closely impacted between the bones of the pelvis.

The true vertebræ are divided into three classes, those of the neck, the back, and the loins:

1. The cervical, or those belonging to the neck, of which there are seven, are of more simple construction than the rest, and bear some resemblance to osseous rings, their processes having very little projection; they are susceptible of greater extent and freedom of motion, than is found in the other divisions of the column.

2. The dorsal, or those appertaining to the back, the number of which is twelve, are larger and stronger than those of the neck, yet inferior in these respects to the lumbar division; they are severally locked together and strengthened by their connexion with the ribs, and their processes being laid one over another; this division of the spine requiring, from its position, but a limited degree of motion, may be considered the firmest and most stationary of the three.

3. The lumbar, or those appropriated to the loins, are five in number, which having to sustain the whole weight of the body, are proportionably large and strong; their processes are not closely united with each other, except the articulating ones, but stand out wide and free; these vertebræ perform the principal motions of the trunk.

The office of the spinal column in the animal economy is very important; it forms, by the junction of these twenty-four vertebræ, a continuous canal, for the passage of the spinal marrow; at the same time, by each bone having a slight motion upon its fellow, and by the union of the whole chain, a considerable degree and

variety of motion is obtained. A front view of the spine presents these twenty-four bones piled one above another, perfectly perpendicular, and measuring about one-third of the length of the body. It has, in the anterior aspect, a pyramidal figure, the base resting upon the sacrum, the apex supporting the head. Though this is true of the column itself, yet as far as the bodies of the vertebræ are concerned, they are found to diminish from the last lumbar to the fourth or fifth dorsal, and then gradually to increase to the cervical, so that it would appear that the weakest part of the spine is about this part. A posterior view also presents a perpendicular column, in the centre, are seen the spines of the vertebræ, and on each side the transverse processes bounding them, and forming, between the spinous processes and the angles of the ribs, a deep fossa, which is filled up by masses of muscle, intended to support and raise the body. A lateral view presents this column in a beautiful double flexure, having two convexities and a large central concavity, answering to the thorax, containing the most important organs of life. Behind the bodies of the vertebræ are seen the holes through which the spinal nerves pass, these are formed by notches in the arches of bone which constitute a portion of the large foramen.

Commencing from the neck, the vertebræ progressively increase in size, with the exception just mentioned, though they diminish in density and firmness of texture, until they unite with the sacrum; so that the lower vertebræ, though larger, are proportionally less in weight. By means of this increase of size, they possess additional

strength for the support of the trunk and allow greater freedom and security of motion.

In each vertebra may be noticed a body, processes, a foramen and four notches.

The *body* is that thick strong central part situated in the front, and of an irregular oval shape; above and below, the surfaces are horizontal and slightly hollowed to receive the intervertebral substance,—anteriorly and laterally the body is convex, behind it is concave, to form, along with the arches which spring from it, the large foramen for the spinal marrow.

Processes. The processes of the vertebræ are seven in number: the spinous, the two transverse, and the four oblique. The spinous—which are placed at the back of these bones, and may be distinctly felt down the back, giving the whole the appearance of a ridge, whence, as before stated, it has acquired the appellation of spine. The two transverse—which are situated on each side the spinous, and afford attachment to the ligaments, tendons and muscles of the spine. The four oblique or articulating—which are much smaller than the others, two being situated on the upper, and two on the lower part, of each bone; it is by their means, chiefly, that the vertebræ are so completely united; throughout the whole of these, the upper process of each vertebra is connected with the lower one of that immediately above it, and thus forms a joint, though it possesses an inconsiderable motion.

Foramina. There is in every vertebra, a large cen-

tral foramen or opening, each corresponding with the other, and, by their union, forming a bony canal for the lodgment of the spinal chord. There are also four notches on the arches of each vertebra, two on the upper, and two at the lower part; the notches of the inferior meeting with those of the superior bones, form a foramen for the passage of the nerves and blood-vessels, which issue from the spine, throughout its whole length.

Intervertebral substance. The upper and lower edges of the body of each vertebra consist of a circle of bone of a firm and compact texture, which forms a superficial depression or cavity for the reception of the intervertebral substance. This partakes of qualities both of cartilage and ligament, possessing considerable compressibility; it is most yielding at the outer part, and least so in the centre, and adheres closely to the surfaces of the two contiguous vertebræ to which it belongs. In those sudden shocks to which the body is sometimes liable, it prevents any injurious concussion of one vertebra upon another; at the same time, it readily yields to whichever side the spine is inclined, and, being possessed of a high degree of elasticity, instantly returns to its natural situation. Flexibility and security are thus made to result from this peculiar composition, which serves the purposes of uniting the spinal bones to each other, of diminishing and diffusing the impetus of active exertion, and of admitting a greater extent of motion than would have been obtained, had the vertebræ been in more immediate contact. It is owing to pressure on this elastic substance, that the height of the body is diminished by

the erect position during the day, and that it is regained by the recumbent position during the night. This substance and the adjoining cartilages becoming, in process of time absorbed, accounts, also, for the bending forward of the spine in elderly persons, who are unable to support an erect position, as in their youth.

Ligaments. Besides the intervertebral substance, connecting together the bodies of the vertebræ, there are several strong ligaments, anteriorly and posteriorly, running the whole length of the spine; and also others connecting the various processes to each other, and to the ribs, as well as numerous tendons and muscles, all serving to add to the strength of the column, without impairing its mobility.

BONES OF THE CHEST.

Sternum. The sternum is that bone situated in the centre and anterior part of the chest, to which the clavicles and the ribs are articulated, the latter by means of an extensive cartilaginous union. It is of a more spongy structure than the long bones, not having the force of great muscular contraction to support.

Ribs. The ribs on each side, with the sternum anteriorly and the spinal column posteriorly, form a beautiful bony protection for the important organs of respiration, circulation &c. They are twelve in number; and are distinguished into true and false. The head of each rib, divided into two articulating surfaces, is received into two

cavities contiguous to each other, and formed in the upper and lower edge of each dorsal vertebra. The anterior extremities of the seven true ribs are articulated as above described, the rest are not immediately attached to the breast bone. The false ribs gradually decrease in length to the twelfth or last, which is exceedingly short; the cartilages of the eighth, ninth and tenth terminate in those immediately above them, before they reach the sternum, but the two lowermost have not any attachment at their anterior ends like the other ribs, but hang loose, and are supported only by the muscles and other soft parts:—hence, it will at once be seen how readily the circumference of the waist may be acted upon by the strings used in the dresses of children, or the stays worn by females during childhood, or whilst the body is in a state of growth, *indeed it is obvious, there is no power in these parts to resist even a very slight degree of pressure.*

Clavicles. The clavicle or collar bone, is the long rounded bone, flattened at its outer extremity, triangular towards the sternum, and a little curved like the Italic *f*. It is situated, almost horizontally, between the sternum and scapula, and is strongly articulated to these bones, although the joints allow considerable motion. The clavicles are essentially useful in preventing contraction of the chest, by supporting and keeping back the scapulæ and upper extremities.

Scapula. The scapulæ are loosely attached to the upper and posterior parts of the chest, extending downwards to about the seventh rib. The pressure on the left side, oc-

casioned by tight lacing of stays, is exceedingly injurious, particularly by what is called the base of this bone, the edge of which being of a thin, but firm texture, is forced against the ribs, which are of a softer consistence and thereby more readily give way, the former becoming imbedded, as it were, in the latter. This subject, however, will be further discussed in Chapter III. Section I. when treating on lateral curvature; to which the reader is referred.

From the preceding detail of the anatomy of the spine and chest, it will be seen that the vertebral column does not, on account of the varying forms of the bones of which it is composed, possess an equal degree of motion in every part of it; the bones are firmly bound to each other in such a manner, as to admit of flexion and extension, with some degree of lateral motion and rotation, while by their solidity and firm attachment, and peculiar manner of articulation to each other, great strength is secured. The contrivance is such as to give considerable pliancy and freedom to that part which belongs to the neck, and to render the dorsal part firm and strong, whilst, in the region which belongs to the loins, the mechanism of the articulating processes admits, in a still greater degree, of all the motions—the whole combining lightness with strength, and elegance with utility, and affording support to the parts adjoining. It gives both firmness and elasticity to the ribs, whilst, by its flexibility and mobility, it readily adapts itself to the diversified positions, which the body is constantly required to assume. With the ribs and sternum, the spinal column supports

and gives protection to the important viscera of the thorax. It forms the osseous canal for the reception and protection of the spinal marrow, which is thus secured from external injury, the arch and spinous processes being composed of bone of the firmest texture; these, from their extent and number, also afford ample space for the insertion of the large and powerful muscles, necessary for the motions of the trunk, by which means the body is easily kept in the erect position.

Having now given the reader a brief sketch of the anatomy of the spine and its appendages—having shown the skill displayed in its contrivance—the mechanism of its parts and the utility of its design, the next subjects for consideration are the deformities to which it is liable.

CHAPTER III.

ON CURVATURE OF THE SPINE.

THE subject of spinal disease is justly considered as one of great importance: there are, indeed, few maladies to which the human frame is subject, more deserving the attention of the profession and of the public, as well on account of its increasing prevalence and its distressing effects, as of the difficulty of its cure.

The complaint almost invariably shows itself in early life, comprising the whole of the time in which the body is in a state of growth, and sometimes, though rarely, at a later period; indeed, there is no time of life in which it may not make its attack, especially when there exists a morbid state of the constitution. The disease is accompanied sometimes by a mollities or softening, at others, by a caries or decay of the vertebral bones. Its first symptoms are a feeling of languor and listnessness, accompanied by a disinclination to active exercise. During its incipient stage, no material signs of constitutional debility may be visible; the appetite may be good, and the bowels regular; the pulse may not be particularly af-

fected, nor the repose greatly disturbed; but a sense of weariness becomes perceptible in some region of the spine, accompanied, at times, with considerable uneasiness, and unless proper means are promptly taken to arrest the progress of the constitutional causes, a morbid affection of the spine will inevitably ensue. Deterioration of health is not only the concomitant of spinal disease, but it is, in almost all cases, its precursor and primary cause, and is again greatly increased by that derangement of the spine, which it was mainly instrumental in producing.

The symptoms of spinal disease are often so delusive, as to be more frequently mistaken than is the case perhaps in any other complaint; it therefore becomes the duty of the professional attendant, on any indications of its existence being observable, immediately to examine the column, and its appendages. It will then probably be found, that some of the vertebræ have undergone a slight change of position, and, as the disease advances, they become exceedingly sensitive on pressure, the back loses its elegance of form, and the efficiency of its functions in the economy of animal life is injured, and not unfrequently eventually destroyed. Further indications of disease are—slight pain and sense of weariness in the back, caused by disproportionate exertion, tendency to lean to one side, or, if the patient be young, to lie on the parents' lap, or at all events to indulge in a recumbent position;—somewhat difficult respiration, sense of tightness in the epigastrium, as if girt with a cord, and other symptoms are usually attendant.

The spinal column when affected by disease, is highly susceptible; the natural pressure from the weight of the upper parts of the body, which, in a state of health, is not attended with any inconvenience, becomes sensibly and painfully felt; such pressure is also much increased by the encumbrance and tightness of clothes, riding on horseback, or even by the trifling circumstance of having an additional weight in the pockets. While the disease is progressing, other serious symptoms present themselves; the important organs of digestion are pressed upon, and their functions embarrassed and injured; the capacity of the chest is diminished, the circulation of the blood through the lungs is impaired and difficult, and its oxygenation more and more imperfectly performed, thus inducing diseases of the chest,—the particular train of symptoms depending upon the previous health of the patient. When distortion is fully established, it usually puts a stop to the growth of the body, both as regards its height and stoutness, nay, the body frequently becomes more diminutive; the various changes, which are usually unfolded during its growth, are retarded or prevented; in the male sex, the various characteristics of puberty, such as the alteration in the voice, the growth of the beard &c., do not present themselves at the accustomed age; in the female sex, the menstrual discharge is

It is a mistaken opinion, and attended with some degree of injustice, to attribute the prevailing cause of this extensive and distressing evil to the customs and discipline adopted at public schools; the cause is in operation, and the disease generally commences, long before the period at which children are accustomed to leave the parental roof. A remark of this nature seems the more necessary, as the conductors of ladies' seminaries have often a degree of censure cast upon them, which they by no means deserve.

suspended or not established, the natural developement of the breasts does not take place, the complexion is sallow, and the countenance void of its natural degree of animation.

Various authors have written on the causes of spinal disease, and each has had his favourite theory. Such discussions are useful, inasmuch as they tend to detect error and elicit truth. One great error which has prevailed, has been the mistaking the disease of the bones for that of the cartilages, ligaments and muscles; the affection of latter being, for the most part, the natural results of the former; the primary seat of the disease is in the vertebræ, which, from their peculiar structure, become softened, and by continued pressure, absorbed. Further changes in the figure take place, according to the part of the spine affected, and the state of the health. To the erroneous opinions formed of the nature of the complaint, more than perhaps to any other cause, may be attributed the want of success, which has so often attended the treatment. This does not so much arise from the destructive nature of the malady and the inadequacy of remedies, as the want of ascertaining, accurately, the specific nature and causes of the disease in its incipient state.

The formation of particular kinds of curve is owing to various, and often apparently trifling, causes; amongst which may be mentioned—the particular positions children are allowed to indulge in for a length of time, as sitting long whilst engaged in reading or other occupations of a sedentary nature—the child having previously had delicate health. Sometimes the different species of

curvature, though distinct in their nature and effects, are found either wholly or partially united in the same case, with which there is frequently considerable deformity of the chest, the sternum projecting and the ribs being flattened and pressed in various directions.

Curvatures of the spine generally originate in the dorsal vertebræ; they sometimes, however, occur in the neck and loins. Weakness of the dorsal and other muscles is generally assigned as a cause of curvature; this, however, is not the case, it being decidedly the effect of the distorted state of the bones and the diseased action under which the system labours: when the constitution is in this morbid state, there is a deficiency of earthy matter or phosphate of lime, which deprives the column of its firmness, and occasions it to yield under the superincumbent pressure.

The diseased state of the bones, known by the familiar term, rickets, though almost exclusively occurring in childhood, does occasionally make its appearance, even after the period of puberty. Its tendency is to produce that particular species of curvature, to which the body may, from accidental causes, be predisposed: the stated employment, and mode of dress of the individual affected, and, more especially, any peculiarity of position adopted in consequence of previous illness, will all concur in in producing this effect. Rickets, however, must not be confounded with diseases of the spine, as the latter may exist, where there is no indication of the former.

The origin, symptoms and effects of the different

species of spinal disease, have much in them that is common to each other; but, in order to place the subject in a more lucid point of view, and to explain the peculiarity of its different forms, it may be desirable to treat of them separately. The order in which they may be respectively arranged, according to their importance and the frequency of their occurrence, is the following:

1. Lateral curvature.
2. Angular curvature or projection.
3. Excurvation.
4. Incurvation.

CHAPTER IV.

LATERAL CURVATURE.

THAT description of spinal curvature which is usually styled "lateral," is far more common than the other species of the disease. It usually commences its attack during the period that intervenes between childhood and maturity, or whilst the body is in a state of growth. Its ravages are, almost exclusively, confined to the female sex, amongst whom it is so exceedingly prevalent, that few in the middle or higher ranks of society are entirely exempt from it. This striking circumstance obviously proceeds from some corresponding cause; what that cause is, it has been attempted, in a preceding chapter, to shew: yet, the subject is so important and interesting as to render excusable the repetition of the assertion, that it is mainly attributable to the use of improper stays, as an article of female dress. The truth of this will be more apparent, when it is recollected that the disease is not of frequent occurrence amongst females in the lower walks of life, whose limited circumstances present an insuperable and salutary barrier to their obtaining expensive stays, which are generally in-

jurious in the ratio of their cost; because, such as can be obtained at a low price are made of slighter materials and soon give way, whilst those more expensive, are firm and unyielding: the occupations, too, of this description of females being of an active nature, oblige them to use much muscular exercise: when, therefore, it is considered that the disease is scarcely known amongst males, and that of females, it is confined to such as make use of improper stays, tightly laced, there can be little doubt as to its origin.

Notwithstanding its extent and continued increase, and the large amount of debility and suffering to which it is daily giving rise, the chief cause of this appalling evil appears either to have escaped attention, or not to have been sufficiently promulgated. If, however, as has been asserted, "the knowledge of a disease be half its cure," it is a matter of no inconsiderable importance to have correct opinions as to the origin. Nor is the subject less important, when considered in reference to that portion of the community, who are the principal sufferers from its effects in their own persons, many of whom are ignorant of the causes of the ill-health and debility they endure; and, therefore, to them and their posterity, correct views of the tendency and effect of the extensive and pernicious habit, shown to be the chief cause in the production of lateral curvature, cannot but be highly interesting.

The usual mode of attack in this species of disease is as follows:—after long continued pressure upon the

chest and abdomen, occasioned by the instrumentality of tight lacing, a perceptible deterioration of health ensues, the rapidity of which will depend much upon the previous state of the constitution. This derangement of health naturally produces a softening of the bones, accompanied frequently by disordered functions of the lungs, in which the heart and abdominal viscera participate, and unless arrested in its progress, deformity will be established, producing a scene which terminates in suffering and calamity and, often through neglect, in premature dissolution.

A very little reflection will show the reader the mode in which lateral curvature of the spine is generally produced. The upper part of the stays are brought close under the arms, and being tightly girt behind, they cause excessive pressure on the scapulæ or shoulder blades; these, in their turn, press upon the ribs and spinal column, and by this pressure, the free use of the arms is obstructed. The various avocations of life unavoidably tend to a much greater use of the right hand and arm than of the left, by which means the former are enabled to emancipate themselves, in some measure, from the unnatural and disagreeable restraint in which they are held, whilst the latter continue, comparatively, motionless: this is the immediate and constant cause of that elevation of the right, and consequent depression of the left, shoulder, so common amongst females in the middle and higher classes of society. The disproportion in the size of the shoulders, which is so evident, is not occasioned by any material enlargement of the right shoulder, in which little or no difference takes place; the disparity arises from the dimi-

nution in size of the left, occasioned by the injurious pressure and confinement to which it has been subject. This more frequent use of the right hand and arm, which custom has rendered almost universal, combined with the injurious effects of pressure by stays, the consequence of tight lacing, is productive of the general prevalence of lateral deformity in young females, especially when of delicate constitutions. By the general use of one arm and side, as already stated, and the feeble resistance offered by the other to the confinement and pressure of stays, the left scapula is forced against the ribs, and these, in turn, against the spinal column, which is thus pushed towards the right side:* and, in severe and long continued cases, some of the vertebræ, generally a part of the dorsal, are so far displaced, as to be driven under the heads of the ribs on the right side, which being bent at an acute angle, form a ridge, that upon a superficial examination, may easily be mistaken for the prominence of the true spine, more or less curved, the convex side being towards the right shoulder. In such instances, the upper dorsal vertebræ give way so completely, as to become almost horizontal; the hips also appear exceedingly disproportioned in size, the left one being much more prominent than the other.

The cause of lateral distortion has been attributed to the habit of standing with the weight of the body bearing principally on one leg—to that of lying generally on the right side when in bed—or to the circumstance of con-

* This may be very much increased by the nature of the employment of the individual, and the degree of muscular exertion used.

tinuing long in one position, whilst engaged in the practice of music, writing, and other employments, in the performance of which, the usual posture is of an unfavorable kind. Too much importance, however, has been attached to these particulars, which would have little effect on a healthy person not suffering from injurious pressure; the causes of the peculiarity of the distortion arising from the extent, direction and continuance of the pressure. The disease must necessarily be perpetuated by a defective state of health, and as an effect, a diminished deposit of the earthy portion of the bone; so that, as the disease has a constitutional, as well as a local, origin, whatever mechanical treatment be adopted, will avail little unless the health be also improved.

If, from partial pressure on the lower part of the chest and abdomen by means of stays or the constriction of other articles of female dress; or, if from debility, combined with the above causes, only a slight deviation occur in the spinal line, the intervertebral cartilages must of necessity become of unequal thickness, and the upper part of the spine will unavoidably incline to the thinnest side; which, having more than its usual weight to bear, will suffer from the compression, absorption will take place, the proper circulation through it will be impeded, while it will probably be proportionally increased on the opposite side. After a time, the vertebræ themselves become cuneiform or wedge-like, causing considerable diminution in the height of the body; and a separation of the articulating processes gradually ensues, the progress of which will afford satisfactory means of

forming a judgment of the extent of the disease; such alterations of structure being productive of great disturbance to the functions of the viscera, and explaining a number of anomalous symptoms which frequently occur in the progress of spinal disease.

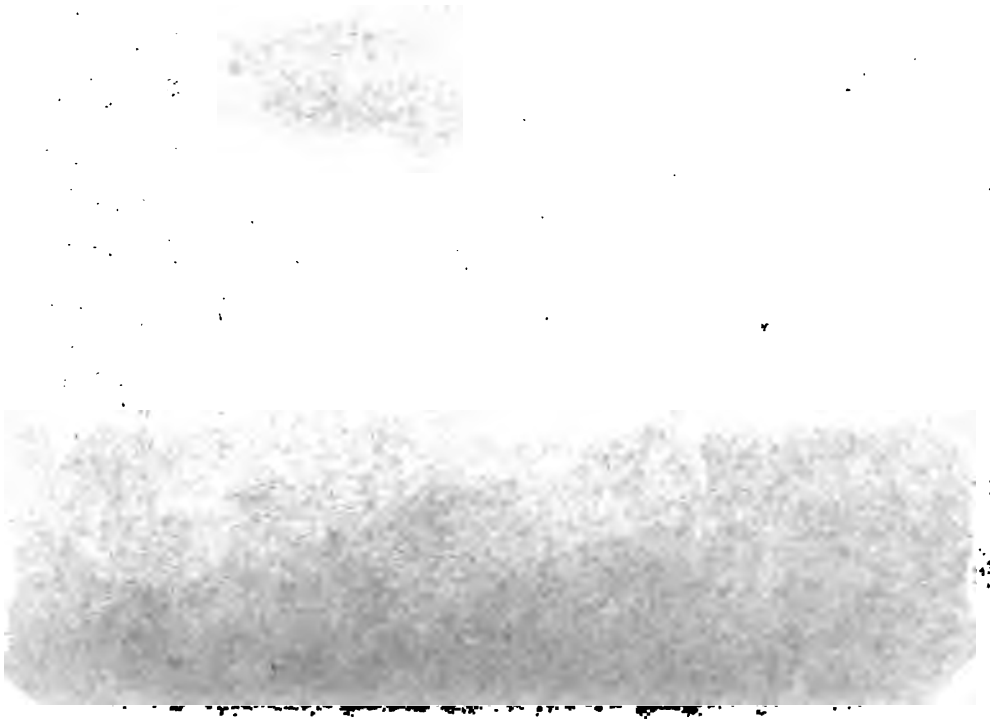
In cases of lateral curvature, the spinal column and the ribs may be distorted to a considerable degree, without the bones having become carious, especially if the deformity commence before puberty; at the same time it ought to be stated, that caries has occasionally been found during anatomical investigations of this disease. In a few instances, there may be a tendency to *mollities*, depending upon a deteriorated state of health, and the existence of such local causes, as produce this particular kind of deformity; but the author has little doubt that in the generality of cases, the deformity takes place from mechanical pressure, combined with a delicate constitution, the one acting upon the other;—hence the necessity of medicinal, as well as mechanical treatment. It must always be kept in view, that the lateral curve is by no means uncommon in girls, who appear to be but little predisposed to spinal disease, being healthy in their appearance, active in their habits, and having the advantage of favorable physical circumstances. In such cases, the mischief is entirely attributable to impropriety of dress; the other causes that have been previously enumerated, together with the unfavourable tendency of sedentary employments, would in cases of this kind, be found insufficient of themselves to produce the deformity: for, without the improper pressure occasioned by

this injurious habit, the distressing effects, daily witnessed, would rarely occur;* but, when there is a combination of these causes, we need not wonder that distortion is induced. It is a circumstance of comparatively rare occurrence, for the male sex to be affected with lateral curvature, because they are not subject to the chief exciting cause—excessive compression; nothing can more forcibly show the injurious effects of such pressure, occasioned by the artificial support to which females have recourse, and which they are, erroneously, supposed to require.

In long continued cases, the spinal line becomes exceedingly concave on the left, on which side the shoulder and clavicle are more depressed, and the right side becomes proportionally protuberant. The integuments over the abdomen are folded or wrinkled, the left breast is seldom fully developed, the ribs lose their natural shape, those of the left side becoming straighter, while, on the right side, they are so much curved, as to admit of their being easily grasped by the hand; they are closer together on the left side, and frequently rest upon the spine of the ilium, thus giving the right side a fuller and more rounded appearance than is natural. Cases have also fallen under the observation of the writer, where, in consequence of the peculiarity of the distortion, several of the lower ribs have been folded or tucked under those immediately above them. There is generally

* A further deformity is taking place among the young females of the present day, who, in addition to their having lateral curvature, are generally becoming round shouldered, owing to their dress not resting, as it ought to do, *upon* those parts, but pressing *against* their arms, a little below the acromion; the obvious tendency of which is to bring the scapulæ forwards, to obstruct the free use of the arms, and cause an unsightly protuberance of the shoulders and upper part of the back.

II.



II.

a very considerable hollowness or cavity on the left side; the right shoulder, although higher than the other, is not so broad, owing to the curvature of the ribs, which form a projection, resembling the spinal column, from which it can scarcely be distinguished.

It is obvious, that as the disease proceeds, the scapula, by constant pressure, becomes displaced; and the ribs are forced from their natural position and become distorted, producing deformity of the chest; the consequence is, that a morbid state of the lungs takes place, particularly where a predisposition exists: the breathing is rendered laborious, painful and difficult, the circulation is impeded, and palpitation of the heart ensues, whilst the right side of the back and parts adjacent become weakened and more prominent. Such disastrous effects need not excite surprise, when we reflect on the peculiar form and construction of the chest, which, the reader may remember, was explained in treating of the anatomy of the spine; where it is shewn, that the seven true ribs are joined to the sternum merely by a *cartilaginous* connexion—the eighth, ninth and tenth are attached to the cartilages above them, only by a continuation of the same substance—the eleventh and twelfth have not *any* articulation at their sternal ends, whilst their attachment with the spinal column is by means of a joint, which, combined with their natural elasticity, readily gives way on slight pressure.

Although the lateral is the species of distortion most frequently met with, yet it is by no means uncommon for the other kinds to be combined with it; indeed,

the disease assumes such diversity of appearance, that no two cases occur which are exactly alike, even in the practice of those who are most extensively engaged in its treatment.

It often happens that the disease is neglected, in consequence of the insidious manner of its approach, until great deformity has taken place, and then recourse is had to steel stays and other artificial means of support, which, so far from being attended with benefit, generally increase the evil, by producing other injurious effects, as much to be dreaded as the original disease, while the primary cause of the mischief is often altogether overlooked; and thus the disease is suffered to gain ground, until an effectual cure is rendered exceedingly difficult, or quite impracticable.* A serious error also frequently occurs in the hope which parents entertain, that their daughters will outgrow the complaint, a circumstance altogether impossible, while the causes are continued, which produced it. These mistaken notions, on the part of parents, as to the true nature of the malady, and the erroneous practice to which they give rise, produce ultimately, a train of evils, distressing alike to the sufferers and their friends.

* The author is so persuaded that great mischief has resulted from the practice of using steel stays to support the figure of those who are threatened with, or suffer from, deformity, that he cannot forbear again alluding to the subject. If deformity be the result of debility of the muscles, as is so frequently said, or a want of equilibrium in the muscular force, the use of steel supports, by taking away the weight of the body, absolutely weaken them; for it is well known that "Exercise is the perfection of an organ," and without it, atrophy must follow. But another objection of a very formidable nature remains; the greater number of steel stays are formed to embrace the hips tightly, and to concentrate the whole weight of the head and trunk upon those parts, the effect of which must be, a contraction of the apertures of the pelvis, produced either by the pressure acting on the crests of the ilia, or inducing distortion of the pubic bone:—both of these being fearful alternatives.

CASE.

THE engravings, at the commencement of this Chapter, illustrate a case of lateral curvature, which, on account of its long continuance and great deformity, was considered as affording but little hope of recovery. Two of the plates, Nos. I and III, describe the bust of a young lady, aged eighteen years, and resident in one of the northern counties of Scotland. These are from casts taken at the time she commenced the course of treatment; Nos. II. and IV. exhibit the same case, after the patient had been twelve months under the author's care: they will probably be examined with considerable interest, as showing the decided advantage resulting from the treatment recommended, in an extreme case of distortion.

The following is the account which the author received from the young lady and her mother, relative to the state of her health, and the origin and progress of the disease. She was a small delicate child when born, and, during the first six weeks, in a state of almost constant suffering; she subsequently improved and went on much as other children do; her complexion was good, but she was never stout; she began to walk when about eighteen months old. When six years of age, she had the scarlet fever, hooping cough, and worm-fever, in almost immediate succession, so very severe and long continued, as to reduce her to a mere skeleton; the danger was imminent for six weeks, and for more than two months, her mother had scarcely a single night's sleep; the child had constant diarrhœa, the evacua-

tions being bad in colour, and very offensive. Of these complaints she gradually recovered, but when eleven years of age, was again confined for upwards of three weeks, with a febrile attack, which left her exceedingly weak. In the spring of 1834, her mother happening to be present when she was dressing, observed such an appearance in the form of her back, as convinced her that deformity had taken place; she had, for many months before, noticed a peculiarity of gait, and an unnatural motion of her head, which she now felt assured was connected with this distortion.

Upon investigation, it was found that she had felt very weak and had suffered much inconvenience for at least a year previous to the time at which the appearance of her back attracted her mother's attention.* On examination by her medical adviser, it was seen that a curvature of the spine had taken place, that the left hip was becoming large, and that the ribs, on the right side, protruded considerably. The patient complained of much suffering in the right shoulder and ribs; she had also a feeling of great weakness throughout the spinal column, particularly about the upper part of the curve.

Several medical gentlemen were, successively, consulted, resident in England as well as in Scotland, who recommended friction, issues, tonics, the recumbent position. Her health, at this time was in a very indifferent state; she became exceedingly emaciated, pale and sallow,

* But from the accounts she gives and the state of the spine, it is probable she had been affected by the complaint, from the time she was eleven years of age.

and her situation was such as to cause great alarm to her friends. Under these circumstances, steel stays were recommended to support her back, and a pair was procured from an eminent maker in London, which she wore about five months, but, during their use, got rapidly worse.

In August, 1836, her professional adviser, Mr. Hall, now resident in Glasgow, wrote to the author, giving an outline of the case, and requesting his opinion. In reply to this communication, he said that he considered the case a very unfavourable one, but had no doubt that, were a proper course of treatment adopted and steadily persevered in, she would obtain, if not a perfect cure, at least such alleviation of her sufferings as would be quite satisfactory. On the receipt of the letter containing this opinion, it was determined by the lady and her friends, that she should proceed to Leeds, where, with her mother and a servant, she arrived on the 26th of September.

When first seen by the author, the deformity had assumed the serious and alarming form, represented in plates Nos. I. and III. The left scapula, by its continued pressure on the ribs, had bent them in such a manner as to form a complete fossa, or bed; and these, by their junction with the spine, had pushed a portion of the column under the heads of the ribs on the opposite side, four of the vertebræ having entirely disappeared, and, strange as it may appear, were not perceptible on a most attentive examination; the ribs, on the right side, formed an angular and nearly perpendicular ridge, which it required no small degree of care to distinguish from the

spine itself, the entire trunk presenting a very extensive sigmoid distortion. The integuments on the left side had a most singular appearance, forming a duplicature, or double fold, which extended from below the left scapula, round the hip, and across the umbilical region, towards the right side. She had suffered exceedingly from the pain in her back, which of late had greatly increased; and she had become so weak, as to be quite exhausted, if she took but half, or even a quarter of an hour's walk.

The cervical vertebræ participated in the affection, having a slight curvature to the left side, with an inclination of the head in the contrary direction; this formed the upper part of the flexure, the largest curve being formed by the dorsal vertebræ to the right, while a slight one existed in the lumbar region, to the left. On suspending a plumb-line from the base of the occiput, its string shewed that the column had diverged four inches and a half in the dorsal division, whilst the left ilium at its greatest projection, was distant full eight inches, from the median line.

October 1st, 1836. Commenced the use of the apparatus; the recumbent position was strictly enjoined, the weights gradually increased, and pressure was applied, by means of compresses, to the protuberant parts: her health was in a very unfavorable state, she was exceedingly weak, could bear no fatigue, was much emaciated, and her digestive organs greatly disordered, the bowels being constipated, secretions unhealthy, and urine turbid; she complained also of constriction in the epigastric region, and of oppression in her breathing. Catamenia have not

yet appeared. Pulse, eighty-six; tongue, white and furred.

January 2nd. 1837. After three months' treatment, and perseverance in a course of alteratives, with occasional calomel purges, salines, and light vegetable tonics, very perceptible improvement is obtained; her general health is greatly improved, appetite good, secretions more healthy, and she has gradually lost the wan and emaciated appearance, which she had on her arrival. There is an increase in her weight of five pounds, and she has gained two inches and three quarters in stature.

April 3rd. The amendment observable in her form, and in the state of her general health is gratifying and regularly progressive: her skin has assumed a more clear and healthy appearance; there is a considerable increase of adipose membrane, and her appetite is greatly improved; in fine, all the symptoms are such as to encourage a hope that she will, ultimately, attain the great object in view—the re-establishment of her health.

The distressing anxiety which her friends have, for a great length of time, suffered on her account, and the melancholy forebodings which previously existed, as to the issue of the disease, are now happily relieved, and her own spirits are, in consequence, much more cheerful and buoyant. The sensibility of the spine is greatly mitigated; catamenia have commenced, and she is now, decidedly, in a state of convalescence.

July 3rd. The patient continues to improve in all respects; she has become stout and healthy in appear-

ance; is entirely free from any general symptoms, and, each succeeding month, she experiences an augmentation in weight and becomes proportionally taller.

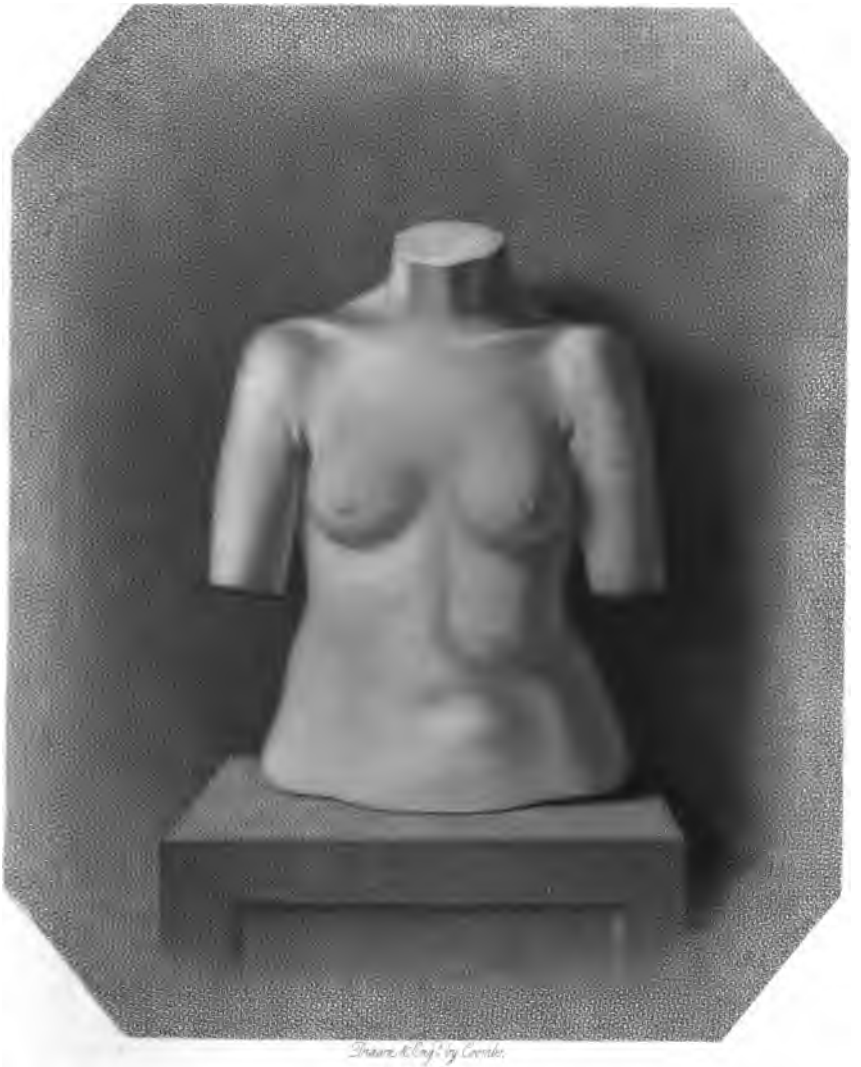
Her medical friend, Mr. Hall, has this month paid her a visit, and, among other warm expressions, said that "had "he not had an opportunity of satisfying himself, by ocular "demonstration, of the surprising alteration that had taken "place, he could not have given credit to it."

September. An epidemic, similar to the influenza which prevailed at the beginning of the year, is now very prevalent, of which she has had a smart attack, accompanied with considerable inflammation of the lungs; this, however, is now relieved, but it has reduced her strength considerably: in other respects, she is going on very satisfactorily.

October 1st. The spine has almost regained its natural position, the folding of the integuments has nearly disappeared, her figure is proportionably restored to its natural state,—her height having increased more than five inches. The complexion has improved, her countenance is more animated, all the functions are regularly performed, and the body has acquired much of what the French call "en bon point." She is now allowed to leave the inclined plane, and walk about the room a little, daily; and, in the course of a short time, as she becomes more accustomed to the erect posture, will take exercise in the open air.

November 13th. She left Leeds for Scotland this day, considerably recovered from her recent indisposition, but not looking so well, nor being so strong as previous to the attack. Catamenial periods have continued quite regular.

IV.

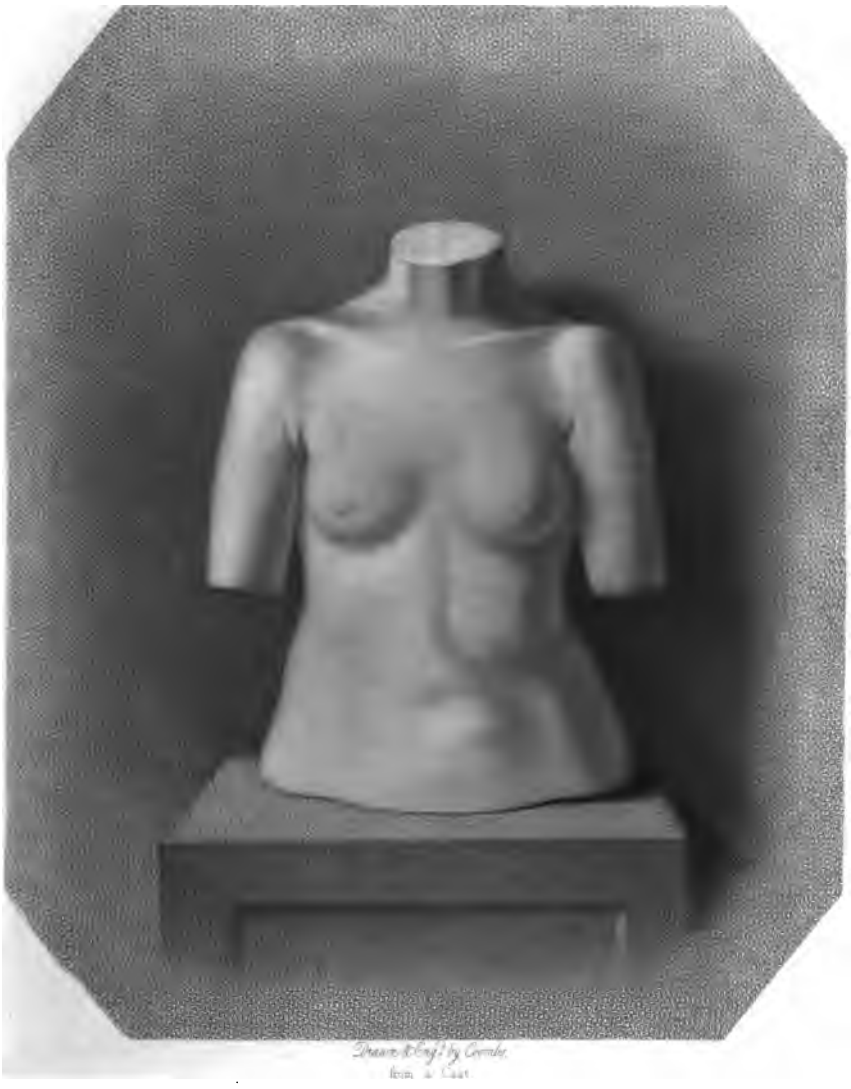


Drawn & Engd by Corvisier
from a Cast.

III.

from a Cast

IV.



The treatment, in this case, from the severity of symptoms, was necessarily more protracted than usual, having been continued for twelve months; its effects, however, as shown in the plates Nos. II. and IV. were great and highly gratifying. The case also shows to what an alarming extent lateral curvature may proceed, when not timely checked in its progress, and that, even in cases of the most serious description, it is generally in the power of medical and surgical science to afford efficient relief, if not entire recovery.

CHAPTER V.

ANGULAR CURVATURE, OR PROJECTION OF THE SPINE.

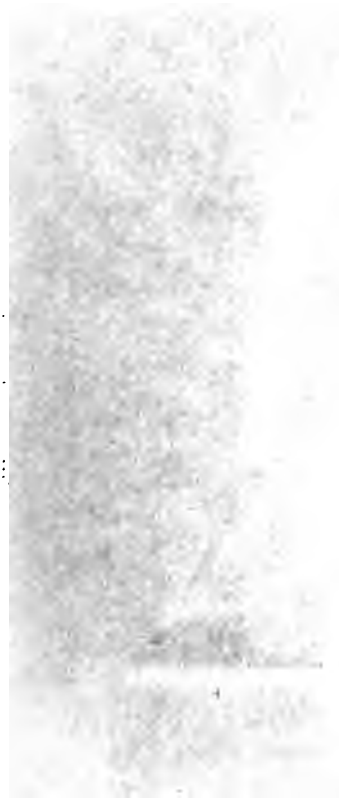
ARRANGING the species of curvature, as was proposed, in the order of their relative prevalence and importance, the next in succession is that usually styled "angular." This form of the disease commonly takes place in early life, and is generally the result of a severe attack of some acute disease, as scarlatina, measles, &c., or any other circumstance bringing into action a scrofulous diathesis; it may also arise from local injury to the vertebræ. Its seat is generally towards the lower part of the dorsal vertebræ, and it assumes the angular form, owing to a caries of one or more of these bones, and the consequent destruction of the connecting cartilages and ligaments; the weight of the head and shoulders concentrating their pressure on the already softened bodies of the vertebræ, they become in time absorbed, and this particular projection necessarily takes place; indeed, without their destruction or absorption, it would be impossible for it to occur. The

origin of the disease is certainly in the bodies of the vertebræ, and not in the cartilages and ligaments, as has been supposed: this view of the progress of the complaint accounts for every symptom which subsequently takes place. In a great majority of cases where males are the subjects of spinal deformity, it is the angular curve with which they are affected; to this particular species of the disease, females are equally liable, though, in comparison with lateral curvature, it is, with them, of very rare occurrence.

This species of curvature is, decidedly, a disease or caries of the bones, and, in many cases, on pressure being made on the spinous processes, a feeling of softness is evident, accompanied with great sensibility, the former being indicative of a state of ulceration. When young children are attacked by this complaint, they shrink from the least attempt to exercise them, being constantly uneasy, and fretting almost incessantly: if the disease be of a more chronic nature, and commence in those who are a little older, they complain of great fatigue from trifling causes, of anomalous pains about the præcordia, as if girt by a cord; they are incapable of active exercise, and require the almost constant attention of their parents; they appear dull and inanimate, and are, in consequence, often scolded for their indolence by those who are ignorant of its morbid cause. In the progress of the disease, abscesses are not of unfrequent occurrence, forming in the immediate neighbourhood of the part affected, and pointing externally; or internally, taking the direction of the psoas muscle; or passing down the thigh, appear at the back part of it;

the patients are not unfrequently deprived of the natural power over their lower extremities, and, consequently stumble over any irregularities of the road—are unable to support the head and shoulders in their natural position—and sometimes even incapable of loco-motion. It is therefore, the duty of parents to guard against the approach of so formidable a foe, and, should it, notwithstanding their vigilance, make its appearance, to pay the closest attention to its earliest symptoms.

The progress of the malady, as regards its rapidity, depends upon the nature of the first cause, the physical condition of the individual affected, the extent of the disease which has taken place in the bone, and the degree of attention it has received. If it be the result of an acute attack, accompanied by a deteriorated state of health, it is generally very rapid, which will readily be conceived, on taking into consideration the cellular structure of the bones; these, together with the intervertebral substance and the surrounding ligaments, soon, in consequence of the existing inflamation, assume a morbid state and become absorbed. On account of the displaced vertebræ and consequent pressure on the nerves, a variety of unfavorable symptoms ensue; starting in the sleep, general numbness and paralysis of the lower extremities and of the bladder and rectum, are frequent attendants on this species, varying according to the situation of the malady; great weakness exists in the region of the disease, accompanied with more or less atrophy of the muscular system, and an increase of diseased action in the digestive organs, as regards the quantity and morbid quality of the secretions.



VI.

The body of individuals laboring under angular curvature presents appearances, varying considerably according to circumstances: it is generally emaciated, the muscular system is weak, and the patient relieves himself by resting his hands upon his knees, leaning against a wall, or, during loco-motion, supporting himself by such articles of furniture &c., as happen to be in his way. The spine presents an angle, more or less acute, varying according to the number of vertebræ implicated in the caries: on an anterior view, the thorax appears enlarged and the cartilages of the ribs expanded, probably in many cases, by the enlargement and pressure of certain abdominal viscera;—a circumstance of almost constant occurrence in such cases. The ribs themselves are not generally so deformed as in lateral curvature, nor is the position of the scapulæ so much altered; they are, however, generally higher than usual, and the shoulders approach very near to the ears. The particular symptoms and morbid appearances may vary in almost every case, but this will only be in degree, as there is great similarity in their general effects. On any of the preceding symptoms, or other irregularity of shape or awkwardness of gait becoming observable, they should be examined without delay, and appropriate remedies immediately applied.

The necessity of early attention to the treatment of angular deformity will be sufficiently evident from the consideration of the state of the vertebræ: after the softened portion has suffered compression for some time, the bodies become absorbed, ossific matter is thrown

out, which unites and consolidates the approximated surfaces of the bones in the position in which they happen to be placed; hence, the absolute necessity of attention to the state and position of the spine in the earliest stage of the disease. If the ossific matter be allowed to accumulate upon the vertebræ, while the column is in a distorted form, the process of restoration will evidently be difficult and altogether inefficient; but if it receive early and requisite attention whilst in a soft state—if it can be made straight, and kept so sufficiently long, for the ossific matter to deposit itself in the vacant space, an anchylosis, free from deformity, or nearly so, will be the result.

**Anchylosis* is the object at which practitioners have always aimed; but unfortunately it has too frequently been attempted in a *crooked* position: the aim which the author has in view, and to which he wishes to draw the attention of the profession, is to obtain this in a *straight* position. The propriety of this view of the subject will probably be rendered more clear by the subjoined wood-cuts; the first is descriptive of an instance of caries in the bodies of two vertebræ, producing angular curvature; the other represents the same vertebræ, in a state of extension, leaving a vacant space, which nature will fill up, provided the health of the patient be improved, and the spine be kept in its corrected position.

* Signifying a stiff joint; from αγχυλομαι to bend.

No. 1. No. 2.

Although the author has strongly insisted upon the importance and necessity of the disease being attended to in its incipient stages, it is by no means to be inferred that he has any doubt of the greatest benefit being obtained even in cases of many years duration, and where there is reason to believe that very extensive osseous deposits have taken place: on the contrary, he is in possession of numerous casts exhibiting astonishing improvements, which nothing but a thorough conviction of the efficacy of the plan recommended, and steady perseverance on the part of the patient, could have produced.

The following are the details of a case of angular curvature, selected from a number of others, as affording an interesting specimen of the disease, particularly, as having occurred so far distant as nine years ago; and they are the more remarkable, as a cast, see engraving No. VI.

has recently been taken, which demonstrates the permanency of the cure, and the subsequent complete developement of the body in its proper proportions.

CASE.

1829. September 1st. The daughter of Mr. J—— W——, of this town, aged eleven years, commenced the use of the apparatus this day. She had been very delicate from infancy: four years ago, she had a severe fall, and was subsequently in a state of almost constant suffering. About twelve months after the occurrence of this accident, her mother first observed a projection of one of the vertebræ; she soon after began to incline to the right side, and her weakness and deformity increased so much, that she was unable to walk without some support. The pain in her back, of which she had complained from the beginning, now increased exceedingly; two other vertebræ became more prominent, and, from this time, she was unable to walk at all, except with her hands on her knees; she was much emaciated, and the only comfortable rest she could obtain was, when laid on her abdomen across her parent's lap.

The enlargement, from the projecting vertebræ to the sternum and throughout the chest and hypochondriac regions, was great in the extreme; two abscesses were forming, one in the region of the liver, the other in the left side, nearly horizontal with, but rather lower than, the diseased vertebræ; the undulation of matter in the latter was quite distinct. The child's health was, of course, much impaired, her breathing very difficult, pal-

pitation of the heart severe, her digestive organs much deranged, and her whole frame was reduced to a mere skeleton.

December 12th. The patient has been regularly on the apparatus, except for a short time in the mornings, for washing and other necessary purposes: this has been the more rigidly attended to, as her parents have been most anxious to accelerate her recovery by every means in their power. For several weeks past, she has slept with the weights attached to her as during the day, and the improvement effected has greatly exceeded the most sanguine expectations.

February 10th. This patient derives much benefit from the exercise of swinging, morning and evening, by means of a rope suspended from the ceiling of the room; to such an extent has she practiced this, that it is not difficult for her to continue it for a quarter of an hour or twenty minutes, without touching the floor.

1830. April 6th. A cast has this day been taken from the patient, and it is not too much to assert that nothing but an inspection of the busts,* or the engravings intended to be taken from them, can convey an adequate idea of the improvement which has taken place; it is needless to particularize symptoms, as the girl has no

* When the young, lady whose case is detailed in the preceding Chapter, was brought to Leeds, the writer deemed it desirable to send for this patient, now a fine young woman, who, on examination, was found so astonishingly stout and healthy, (not having had a single day's illness since her long confinement) that he thought it advisable to obtain another cast, in order to exhibit the striking contrast between it and the one first taken. This arrangement renders it unnecessary to have an engraving of the cast alluded to above.

complaints to make, is very happy, and will continue the use of the apparatus so long as is thought advisable.

June 1st. The patient has now been under treatment exactly nine months; she is in excellent health, having become, in this comparatively short time, quite a robust girl; her appetite is good, the cough and palpitation entirely gone, her breathing and the functions of the stomach and intestines are regular and natural; consequently it is not deemed necessary for her to sleep upon the apparatus, or indeed to continue its use, except in case of more than ordinary fatigue. When standing, she appears quite erect; nearly the whole of her deformity has disappeared, and her personal appearance generally is equally improved. The abscesses have become entirely absorbed.

This case will probably be considered as extremely important, because, in angular curvature, it has been too general a practice, as has already been stated, merely to encourage an anchylosis of the vertebræ in the state in which the practitioner finds them, without any effectual attempt being made to rectify the distortion.

The engravings illustrative of this case, are V. and VI: the former was taken when the patient was first seen, the latter* seven years afterwards; they clearly indicate the efficiency of the treatment and the permanency of the cure, both as regard the spinal curvature and the excellent state of her health.

* Vide, Note, Page 93.

CHAPTER VI.

EXCURVATION OF THE SPINE.

The species of spinal curvature which next presents itself is that, which, from its peculiarity of form, is called EXCURVATION. It is generally preceded by chronic disease of some part, or the whole, of the vertebral column; or may be, though rarely, the consequence of some severe shock or contusion. In these cases, the spinal column is bent forward, especially in the regions of the cervical and dorsal vertebræ; the ribs and scapulæ are bent in the same direction, giving the back a rounded appearance, as is often seen in persons far advanced in life; but there is very little dissimilarity in the size and appearance of the shoulders. This disease approaches in an insidious and almost imperceptible manner, but, though its commencement is scarcely discernible, its progress is not the less certain, and its results painful and melancholy. The peculiar feelings to which it gives rise are not those of acute pain, except in cases of sudden attack; it is rather a sensation

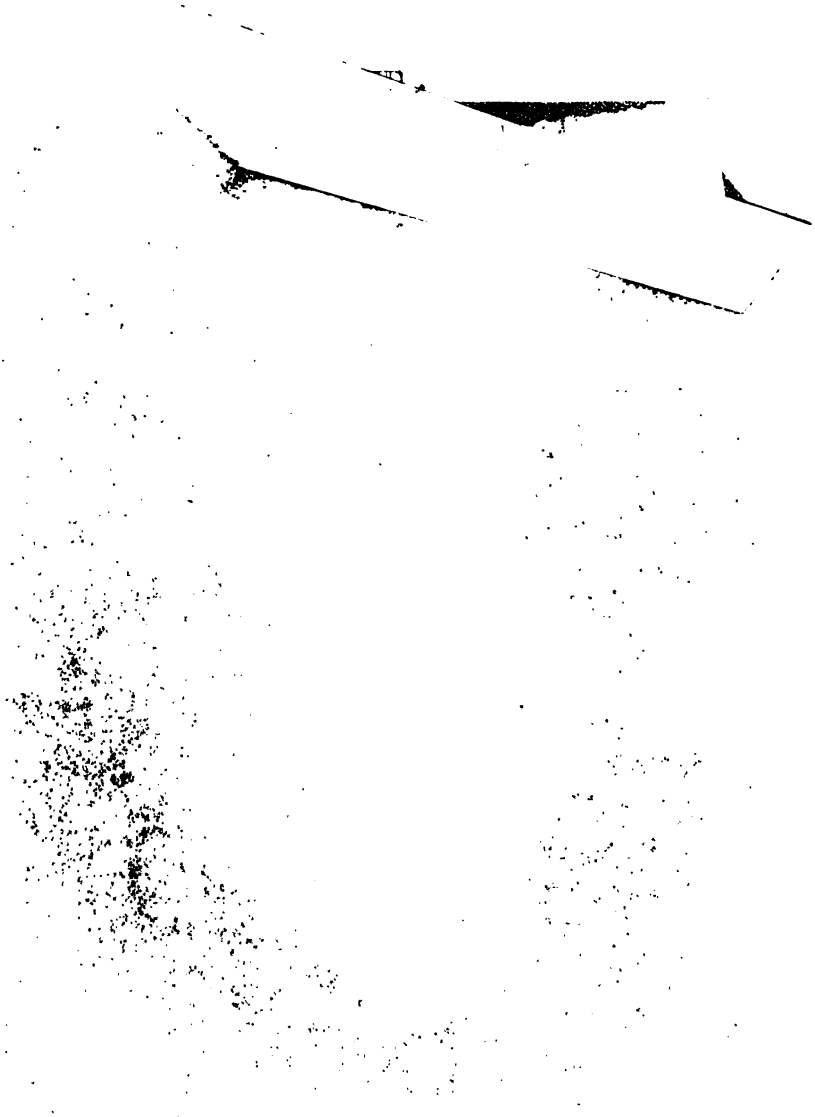
of constant uneasiness, accompanied with languor and disinclination to active exercise; the sufferer usually complains of cold, particularly in the extremities, and a peculiar and distressing sense of numbness throughout the whole frame.

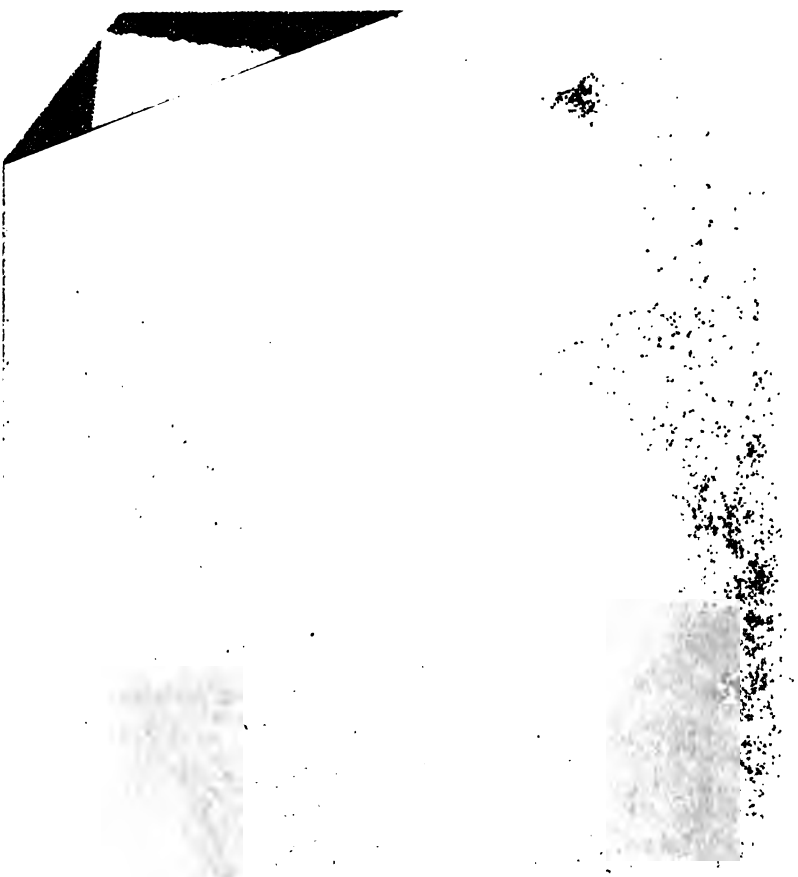
Excurvation often exists for years without exciting particular attention, being supposed to be merely the effect of rheumatism in the back; and thus it is allowed to progress, until the patient feels considerable difficulty in rising from his chair, and walking is found irksome and difficult. Persons who have been subject to chronic disease, or who have worn tightly laced stays, are most subject to this description of curvature. In elderly persons, who have long laboured under this species of the disease, an anchylosis, or union of the vertebræ to each other, is not unfrequent; hence arise the rigidity of their spines, the consequent stiffness of gait, and difficulty of loco-motion. As this state is generally attended with impaired health, a gradual emaciation and still greater difficulty of loco-motion take place; and it is too often under these formidable circumstances, that the medical adviser is consulted.

CASE.

The case of a married lady, Mrs. P——, may very properly be here introduced, as tending in a particular and forcible manner to illustrate the nature and effects of excurvation of the spine.

This patient was, at the time she came under the author's care, (September, 1829) about forty-one years





VIII.

of age, and had been the mother of eleven children. Her last accouchement, during the month of August in the preceding year, was a very tedious and difficult one, having continued for the protracted period of twenty hours. Her attention was first particularly directed to the spine about midsummer, 1821. At that time, she was unable to sit upright, walked with great difficulty, and was obliged to support herself on her husband's arm much more than she had been accustomed to do; her lungs were so much impaired, that her respiration, instead of being easy and natural, was obstructed and painful, and was rather of that character which is usually expressed by the term, "gasping." The muscles of the extremities at length became so feeble, that she was incapable of raising her arms towards her head, or her feet from the ground, without assistance; the cervical vertebræ were so much affected, that she could not sustain the head erect, and her chin, in consequence, sunk upon her breast. She complained of general weakness and considerable pain, particularly in her right shoulder and between the scapulæ; and the sensation of starting in the lower extremities, when night approached, and particularly when in bed, was truly distressing.

For the last three years, she had been confined entirely to the house, and, through inability to walk, was obliged to be carried to and from her room; she was, therefore, when out of bed, compelled constantly to sit in a chair; she complained of excruciating pain in the loins, back, and limbs, by which she was prevented enjoying her natural repose, not obtaining upon an average, more than four or five hours sleep out of the twenty-

four. The state of the spine at the time she came under treatment, is accurately represented in plate VII.

October 3rd. The excurvation in the case of this individual, who was very corpulent, was exceedingly prominent, and accompanied with considerable difficulty in breathing, so that she was scarcely able to lie on her back. In the beginning, she complained of great pain and weakness, was soon fatigued, and therefore used the apparatus but six hours a day. At the end of a month, this unpleasant feeling was greatly diminished, and she was able to raise herself on her plane—a degree of exertion to which she had before been totally inadequate.

December 5th. After being under treatment nine weeks, she could use the recumbent position not only without inconvenience, but even with perfect ease: her health was now greatly improved, the curvature and projection of the shoulders had much decreased, and the whole system had become stronger. In the month of January, 1830, her chest had settled, upon admeasurement, at least three inches, and she was an inch and a half taller. She was now better able to keep herself in an erect position, could walk about a little, and had less occasion to seek support in so doing.

March 1st. For some years past, she had been quite incapable of placing one foot before the other in attempting to ascend the stairs; this however, she is now able to do, although still obliged to avail herself of the assistance of the banister.

April 10th. She is so much improved as to be able to go up and down stairs without any assistance

whatever, and the state of her general health is such, that she considers herself quite well. The bones of the neck have acquired sufficient strength to support the head in its natural position; she also possesses similar power in the use of her upper and lower extremities, being able to use them with great facility.

July 1st. Has used the apparatus occasionally, but not regularly, since April, and has progressively improved. She can now take exercise with considerable ease, and is more active than she has been for many years; indeed she is satisfied, that she can move about with as much freedom as her daughter of nineteen.

The whole time taken up in effecting this change, was little more than six months, though she continued to use the apparatus for some time afterwards. The improvement effected will appear on an inspection of plate VIII, which gives a representation of her figure at the close of the treatment. When the extreme state of weakness to which this patient had been reduced is taken into consideration, together with her time of life and previous state of health, the recovery effected may be regarded as truly gratifying.

The author has great pleasure in being able to state that, about a year ago, he saw the lady whose case he has just detailed, and who has resided for some time in Manchester, and he was happy to find that she continued in the enjoyment of an excellent state of health, that she had been exempt from any return of her former complaints, and that she was quite competent to discharge her domestic duties with perfect comfort and facility.

CHAPTER VII.

INCURVATION OF THE SPINE.

LIKE most of the other species of distortion already treated of, the incurvation or inward curvature of the spine, has a constitutional as well as a mechanical origin, or both combined: when it proceeds from constitutional causes, it most commonly shows itself in the lower cervical and upper dorsal vertebræ, and is frequently succeeded by that peculiar state of the column, denominated the rotated or serpentine state of the spine,—a state which seems to combine somewhat of all the varieties of distortion. This is frequently attended with very distressing effects upon the lungs and heart, which are prevented from freely performing their respective offices, producing, apparently from trifling causes, very great disturbance in the system. The lumbar incurvation, the consequence of a shortening in one of the lower extremities, occasioned by long ex-

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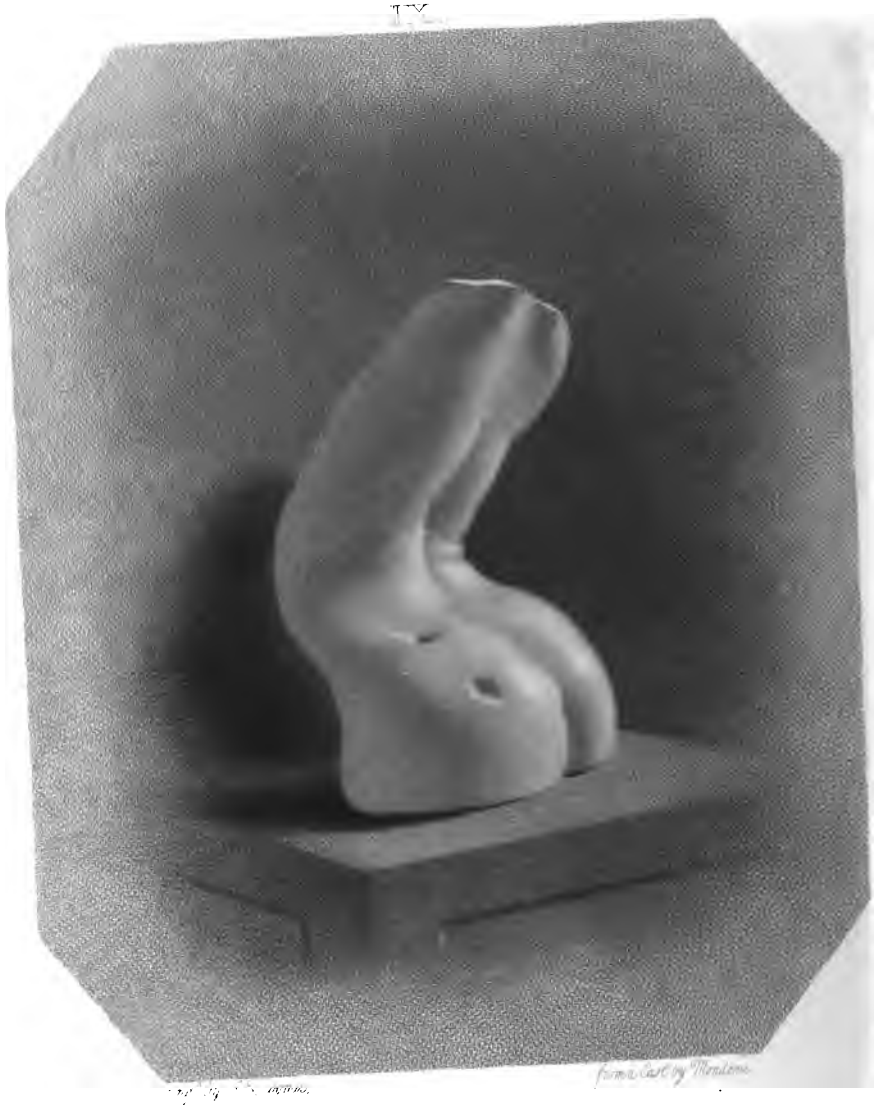
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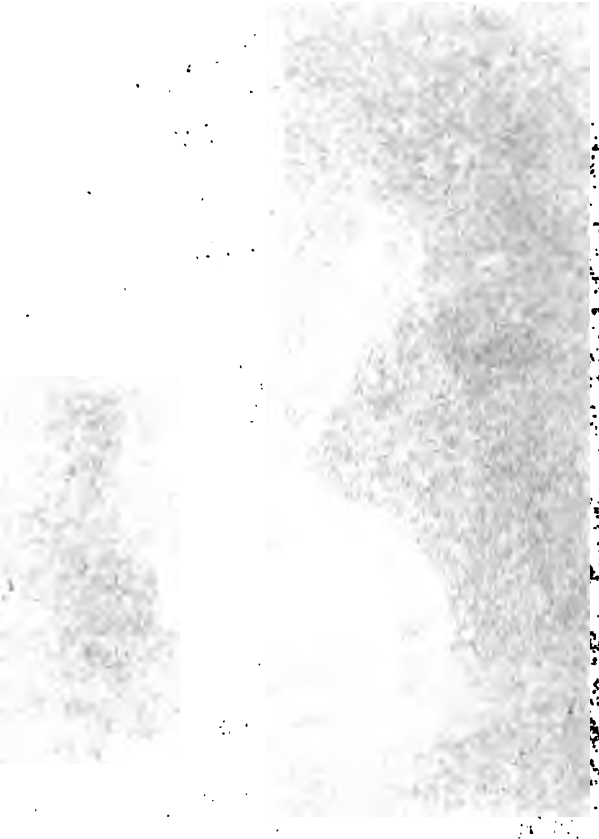

isting disease in the hip joint, is productive of extreme deformity, and great difficulty in walking; it is also caused by a softening of the bones, as in rickets; because, all being equally soft, there is the weight of the trunk, superadded to that of the head and shoulders; in this case, the deformity is general, the lateral one rarely occurring alone. In persons suffering from incurvation of the spine, there is always a stiff and formal carriage, accompanied with extreme rotundity and lameness about the hip: in this, as in the other species, inflammation, caries, and absorption take place, according as there exists a scrofulous diathesis.

This species of curvature perhaps of all others, is the most serious, and in females requires the greatest attention, on account of the deformity of the brim of the pelvis, by means of the lower part of the lumbar vertebræ and the sacrum being pushed forward, and consequently diminishing the diameter of the superior aperture, thus rendering parturition in all such cases proportionally difficult and hazardous, and sometimes even impracticable,—without surgical assistance. This is strongly evinced in reference to a case of distortion, the details of which are highly interesting. *Vide, Page* 103.

CASE I.

INCURVATION of the spine is well illustrated in the case of Miss B——. of this town, aged seventeen years.

The following is the account received from her friends, of the state of her health, before she came under the care of the author.

aperture, and after waiting a proper time, a consultation was held on the case, with the late Mr. Chorley, when it was considered indispensible to have recourse to embryotomy, which was accordingly performed. After this operation, she recovered as well as the nature of her peculiar case would admit, but was left extremely weak, having very little power over her lower extremities. The usual remedies were employed for some weeks, but with little or no benefit.

Observing that she did not recover, after the expiration of the usual time in cases of severe parturition, he was led more particularly to investigate the cause; it was then found that there was more general deformity, not only of the pelvis, but also of the spinal column, than had been previously anticipated, the whole spine being exceedingly sensible to pressure; a considerable curvature existed to the right, and the dorsal vertebræ were affected by lateral curvature, accompanied with a considerable degree of incurvation in the whole of the lumbar region; this was so extreme as to press the sacrum very considerably within the brim of the pelvis. The disease, of which he had not before had any intimation, being thus made manifest,* a proper course of treatment was commenced without further delay, which terminated in her restoration to a state of health, such as she had not enjoyed since her first accouchement.

* It is somewhat remarkable that neither this lady nor her friends seemed to have any knowledge of the origin and continued cause of the long-protracted sufferings she had endured, so touchingly described in her expressive and well-written letter.

The author, on discontinuing his attendance on Mrs. M——, in September 1828, wished her to commit to paper, an account of the indispositions she had labored under previous to such attendance, which commenced January 16th, in the same year; to this she readily and kindly consented, and the following is a copy of her letter.

Sir,

In compliance with your request, I now proceed to give you a statement of the particulars of my case, in which I shall describe my feelings and state of health, as nearly as I can recollect them, for the last twelve years.

1814. Was married, and in the enjoyment of my usual state of health.

1816, October. Was very ill and confined to bed for several weeks; from this time I became much indisposed, and felt great weakness throughout my whole frame, but more particularly in the lower part of the back, and in the hips and knees; when seated, could scarcely rise, and not without assistance derived from placing my hands on the chair. Subsequently I walked very lame, and it was with the greatest difficulty I could get up and down stairs, but particularly the latter; was obliged to observe the greatest care, or should have stumbled over the most trifling obstacle in my way, from not being able properly to raise my feet from the ground.

1817, April. First child born; labor-pains about fourteen or fifteen hours; recovered pretty well, without

being either very lame or weak, for three or four months; when I relapsed into much the same state as before, though not quite so bad.

1818, June. Second child born; labor-pains continued three or four hours longer than before. After delivery, several fainting fits succeeded each other rapidly, and I was, for some hours, in the most imminent danger; this time I recovered very slowly, and it was several weeks before I was able to sit up at all; I was now far from being in good health, I had a poor appetite, could bear no fatigue, was much emaciated, and had pain and weakness in my back, sometimes so much so, as to occasion great difficulty in walking.

1820, February. Had a scvere inflammation on the lungs, and was confined to bed for some weeks; after which, though I could sit up in an easy chair, I was totally unable to walk, from weakness and pain in my back and hips; had a bad and almost constant pain in my side, towards the back and just above the hips.

June. Third child born; labor-pains about thirty hours; after a week or two I recovered, but such a change had taken place in my personal appearance, as astonished my friends; from a tall slender person with a long neck, I was become a little shapeless creature with my chin upon my breast: some said, "Well! were such a "thing possible, I should say you had become the head "less;"—others of my young friends, who had been accustomed, as they said, to look up in my face, had now to look down; my chest was prominent, my body shortened,

my neck completely lost, and my joints so weak, that it was with the greatest difficulty I could walk; in short, the alteration was so great, that my most intimate friends could not have recognised me, except by my features.

November. About this time I became exceedingly lame, and from this period to February 1821, I continued to get worse, so that I was unable to walk without the assistance of some person's arm. I had much pain in my back and hips,—my shoulders were so weak that I could not lift my hands to my head, the pain in my right side was very troublesome, and my stomach was in an extremely disordered state.

1821, April. I continued in the same weak state until March, 1822, when I had another return of inflammation in the bowels and lungs. After recovering from this illness, I could walk a little better than before, continued gradually improving, until the early part of the following year, when I could walk, as I thought, in a tolerable way.

1825. Had a severe complaint in the bowels, which reduced me to a state of great weakness.

1826. Was attacked with inflammation on the brain; for three weeks was quite insensible, and my condition was so deplorable, that I was given up by my medical friends; at length, I began to recover slowly, but again relapsed into my former weak state.

1827, January. Was able to walk about a little,

but had a very numb unpleasant sensation in the hip and lower part of my back, which rather went off in the course of a month or two; kept improving in health till April or May, when I became pregnant and much indisposed, and continued so during the whole period.

1828, January. Fourth child born.—This was indeed a most distressing labor, and lasted forty-eight hours. In addition to my former lameness, weakness and pains, my health was in so very bad a state, that I dared not, indulge myself, in a hope of ever being better, or enjoying health in any degree; my friends were all despairing, and were satisfied that, without the utmost care, the worst possible consequences must ensue. I was unable to turn in bed, or to move my legs at all; the least movement in the room distracted me with pain. After a few days, a slight inflammation took place, which was soon subdued, and, so far as regards my accouchement, I recovered very well; I could not, however, bear to sit up, if I attempted it for more than a quarter of an hour, I had such pains in my back, as made me sick, almost to fainting; if I was raised a little in bed, I had intolerable pain in all the bones about the lower part of the body; I tried to stand, but could not support myself without taking hold of something.

I continued in this deplorable state for some weeks until, by your recommendation, I commenced the use of the apparatus. When first laid upon the plane, the lower part of my back was bent inwards so much, that a hand might be passed under it, edgewise, without touching the extremity of the curve; my chest was so high, that when

I placed my hand on my body, below the breast-bone, I could not see it, as I lay on the machine. For a little while at first, I found it rather irksome, but it soon proved very comfortable, and I even preferred it, to a bed.

A great change was soon observed in my appearance, my chest lowered most considerably, and my back became nearly straight. In four or five months, I was permitted to walk about a little, which I could do very comfortably, and the improvement effected in my health and appearance was truly pleasing to my friends, who told me I walked quite upright, and had nearly regained my natural form and appearance: I also measured more than an inch taller, than when I began the use of the apparatus. I was now almost free from pain, and my appetite and digestion pretty good; I have continued improving to the present time, and am now in good health, and can walk about as actively as any other member of the family. I still find my machine, which I use every day when fatigued, very comfortable, and would not, on any account, be without it.

I remain, Sir,

Your &c.,

M. A. M——

Leeds, September 30th, 1828.

This case is highly interesting and important on account of the extreme state of weakness and distortion to which the patient was reduced; and more particularly as the disease appears to have occupied the whole of the vertebral column for some years before great deformity

took place. So complete a recovery, under circumstances so exceedingly adverse, can scarcely fail to shew, in a forcible manner, the propriety and efficiency of the plan of treatment so successfully pursued.

The author has great pleasure in adding, that the writer of the preceding letter is not only still living, but has since enjoyed, comparatively, an uninterrupted state of good health,—not having had any return of disease in her spine, from the date of her communication to the present time.

CHAPTER VIII.

ON THE TREATMENT OF SPINAL DISEASE.

In placing before the reader an account of the means necessary to be used for the cure of this disease, the author wishes to enforce the importance of strict attention to the state of the digestive organs, as fully entered into in the chapter on general health.

The influence of deteriorated health in the production of the disease has been shewn to be very great, prevailing not only as a predisposing cause, which renders the mechanical effects of stays much more formidable, but also existing as an effect, arising from the long continued use of such pressure; whilst in the angular form of the disease, accompanied as it always is, by caries of some of the vertebræ, an investigation into the constitutional effects becomes paramount and imperative.

In a preceding chapter, the author has endeavoured to point out the primary and proximate causes of morbid affections of the spine, and if we would have these painful diseases extirpated from among mankind, or their afflictive ravages on the human constitution materially diminished, we must endeavour to affect a total or partial removal of the causes, which obviously tend to their production and increase.

It will readily be conceived by all who are conversant with anatomical and physiological subjects, that it is much easier to prevent the incursion of disease, than to arrest it in its course of action;—to keep the enemy without the citadel, than to repel him, when he has obtained admission;—yet, it is gratifying to reflect, that distressing as the symptoms are, by which this malady is characterised, they admit in almost every instance, of considerable alleviation, and in many, of certain cure.

As however, the disease is of so insidious a nature, and often makes its attack, and carries on its injurious operations, in an almost imperceptible manner, whilst its effects are not less certain and destructive, the writer may be allowed to reiterate the injunction, that recourse should be had, immediately on its being first suspected to exist, to the opinion of the professional adviser.

It is on the study of the laws of nature, that all human science is founded, and the treatment of disease to be successful, must have their careful observance for its basis. The efforts of nature, in counteracting the effects of accident and disease, are truly surprising, but instances

frequently occur, where from the interposition of other causes, these efforts are inadequate to meet the peculiarity and emergency of the case; and, on these occasions, she requires the assistance of medical and surgical skill:—

It is thus in reference to diseases of the spine.

Though nature is ingenious, powerful and constant, yet her operations are carried on in subservience to those great and fundamental laws, by which all created beings are controlled and governed. In the settled economy of these irreversible laws, there is an inseparable—an indissoluble—connexion between cause and effect; and over the results of the former, so far at least as direct connexion with the latter is concerned, she possesses no immediate control. All effects, of whatever description, are the certain and necessary consequences of their generating causes; which being removed, the effects, so far as direct connexion with the former is concerned, will inevitably cease.

On examining the skeleton of the human figure, it will be seen, as has been shewn in the chapter containing a brief sketch of its anatomy, that the spine is composed of a series of bones, varying in size, yet, as a whole, uniform in shape, and rising above each other in a pyramidal form; these bones, being united to each other by the intervention of fibro-cartilage, and rendered firm by the addition of strong and powerful ligaments and articulating processes, form a column, combining pliability and strength, with lightness and elegance. This important pillar, by its admirable construction, admits of the greatest

variety of easy motion, and connects and strengthens the component parts of the frame. Although, from its superior strength and great elasticity, it is incapable of dislocation, except by fracture, it is yet highly susceptible of morbid influence, when the natural organization is feeble or the health impaired by disease.

When, therefore, any of the vertebral bones are affected either by caries or mollities, the column becomes proportionally weak, is incapaciated from discharging its legitimate office in the vital economy, deviates from its natural form and position,—and distortion, with its numerous train of distressing symptoms, necessarily follows. If then, by the use of proper means, we are enabled to rectify irregularities of the spine, (and of the practicability of effecting this in the generality of cases, no doubt need be entertained,) we may reasonably expect to remove the distressing symptoms, which are occasioned by them.

The vertebral column, when in a healthy state, is fully competent to perform the duty assigned to it by nature;—but, when it is weakened and distorted by disease or external injury, it becomes incapable of sustaining the burden of the head, arms and shoulders; and hence, reason plainly points out, as a preliminary step to its cure, that all superincumbent pressure should, as much as possible, be removed from it, until the part affected, by judicious management, regain its pristine vigour. This may be illustrated by a very familiar, yet intelligible simile. A slender prop, whilst it continues sound and remains in a perpendicular position, will support a superstructure of considerable weight, but should it become deteriorated by

decay, or deviate from its upright posture, it soon loses its power of resistance, and sinks under the weight it was intended to sustain; in like manner the spine, the great pillar of the body, when attacked by disease, or forced from its natural form, becomes weak and inadequate to discharge its legitimate functions;—recumbency of position is therefore an essential part of the treatment; it should be resorted to without delay, and persisted in until the health be completely restored.

The treatment of spinal disease must necessarily vary, according to the peculiarity of the curvature which exists,—the length of time which has transpired since its commencement—the particular causes that have led to its production, and the various incidental circumstances which have occurred during its progress, and partially affected the result. These are of a nature so exceedingly diversified, that no two cases are in all respects alike, and hence there are few diseases, to which the human frame is subject, that more urgently require the careful attention and minute investigation of professional men. Notwithstanding, however, their Protean form, they are rarely incurable, as, in the course of a considerable and long continued practice, cases of almost every possible description have come under the care of the author, and experience has only tended more strongly to confirm him in the opinion, that there are very few which do not admit of remedy. It is true, that in inveterate cases, the cure will of necessity be tedious, and require a considerable degree of patience and perseverance on the part of the patient, as it will generally be found, that the period oc-

cupied in reducing the distortion, will bear a proportion to the length of its previous duration.

The importance, therefore, of prompt and decisive attention to the first symptoms of the malady, need scarcely be insisted on; and that no time ought to be lost in the application of suitable remedies will be apparent, when it is considered, that every irregularity of the spine must, to a greater or less extent, interfere with the functions of the most important organs of vitality. The greater the delay, the greater, too, will be the risk, that the individuals affected will become permanently deformed, and that they may thus be rendered, for the residue of life, subject to the painful feeling of inferiority in regard to personal appearance, through the culpable neglect of those, whose more immediate duty it was, by early attention to have prevented so mortifying a calamity.

In slight cases, or those which are of very recent occurrence, and to which early attention has been directed, the removal of the causes which have led to their production, will often enable nature herself, when timely recourse is had to the plans here recommended, almost unaided, to effect a cure; but in instances where the disease has made greater progress, and where the distortion has assumed a more decided aspect, suitable extension will be requisite, in order that the diseased vertebræ may be brought into a proper position. In some of the more mild and recent cases, the spinal bones are simply displaced from their natural position in the column, and that portion of the treatment, so far as extension is concerned, may be soon accomplished; but, in more chronic

cases, and especially where extensive caries has taken place, the bodies of the vertebræ having become absorbed, it will require a much longer period of treatment, even after the spine has become straight, to improve the constitution and forward the deposition of ossific matter; the spine must, therefore, in the first place, be brought into its proper or rectilineal form, by regular extension, and be afterwards kept in that position, that the diseased part or space may be filled up with healthy ossific matter. *See, Page* 91.

When a protuberance of any part of the spine has taken place, extension of the column must be accompanied by proper pressure and friction on the projecting part, each application of which, should be continued so long as the patient is able to bear it, without pain or particular inconvenience, and should be repeated at regular intervals, at the discretion of the medical attendant. Throughout the progress of the treatment, it is desirable that friction should be regularly applied to the seat of the disease and the parts adjacent; in the performance of which, the warm hand is perhaps the best instrument, especially when unctuous liniments are made use of; a proper degree of pressure being made on the protruding vertebræ. Flannel may be substituted for the hand; and, if this excellent remedy be extended over other parts of the body, it will generally produce beneficial results. The salutary effects of friction, when properly followed up, are as yet but imperfectly known; because, when recommended, it is seldom tried efficiently; it ought, however, to be practised with the most determined perseverance.

Ablutions of different kinds, selected with due regard to the state of the patient, are highly salutary. In cases of extreme weakness, and where the health is in an unfavorable state, sponging the body, either partially or entirely, is an excellent practice, as is also the tepid bath; but, when the health is firmer and the constitution more robust, cold water may be substituted with decided advantage, particularly in the summer season. Cold bathing is, beyond doubt, one of the best tonics we possess, but the good effects are often frustrated by its being employed, when the patient is in an improper state for its application;—congestion of the digestive organs, a symptom which generally accompanies diseases of the spine, should be removed, and it should be ascertained that the secretions are in a healthy condition. These preliminaries being properly attended to, bathing is of essential service, and may be practised either by means of the shower bath, or immersion, though of course this will be impracticable during the recumbent treatment. After recovery, a temporary residence in or near a maritime town is very desirable: the change of air and the application of sea water to the skin, either by sponging, shower bath or immersion, have a very invigorating influence upon the state of health; nor is the benefit to be overlooked, which arises from the change of scene; the excitement occasioned by the contemplation of new objects, and the constant occurrence of fresh incidents give the charm of novelty to the whole, and call into activity the energies both of the body and the mind. Remedies of this nature, possessed of such powerful qualities, should not be had recourse to, except due regard be paid to the cautions

just given, otherwise, they may not only be used without advantage, but may be productive of great disturbance.

Setons and issues of various kinds have been so long recommended by practitioners of the first respectability, that nothing but extensive practice, and close attention to the subject, can justify the writer in stating, that their use may be dispensed with: after mature deliberation and careful investigation of their respective effects in different cases, he is quite satisfied that blisters are, generally, far more efficacious and decidedly the best counter irritants; in place, therefore, of the seton, he recommends the application of a large blister to the part affected, once a week, or oftener according to circumstances; being convinced that the copious discharge from it, gives more relief than the remedies just alluded to, which are always troublesome and often very distressing:—this is well worthy of consideration, especially as cases of the worst description have been cured without their being resorted to. This is the author's general opinion, he would, however, by no means deny the benefit of caustic issues, &c., in certain cases, particularly when there is caries of the bones.

The peculiar nature of the malady renders confinement absolutely necessary; and this, so far from being injurious, is attended with the greatest benefit, especially if the mind be kept composed, and the apartments are spacious and thoroughly ventilated. For, if the directions previously detailed be regularly and perseveringly observed, the patient will experience a decided improvement in general health; not only on account of the correction of the deformity, but also in consequence of freedom from fa-

tigue and pressure on the vertebræ. The ease with which repose may be taken—the regular superintendence of the medical adviser—and other favorable circumstances under whichthe patient is placed—all conspire to promote the recovery.

On the subject of mechanical assistance in the treatment of diseases of the spine, the profession has long been divided in opinion; some arguing strongly in its favour, and others being disposed to reject it altogether. Perhaps in most cases of obstinate controversy, the truth is found about midway between the contending parties, and this may probably be the case in the present instance. That many mechanical contrivances are, from their construction, more calculated to promote the increase, than the cure, of spinal distortion, the experience of those who are conversant with the subject, affords abundant evidence; although it must be admitted, there are others, which have been found by experience to be of the greatest utility.

The absolute necessity of having immediate and persevering recourse to the recumbent position, has been urged in the preceding pages, in order, that all injurious pressure may be taken from the diseased part; at the same time the body should be allowed every variety of motion, consistent with the maintenance of the horizontal position and the particular circumstances attending the case. Even in the cases of infants, it is surprising how well they bear the confinement, and with what ease they are managed:—the author has had numerous cases of incipient angular curvature completely removed by a few months

recumbent position, with scarcely any other assistance—where, there could be no doubt that a permanent deformity would otherwise have been established.

If the treatment of the disease be commenced in its incipient stage, it admits, generally, of a certain and speedy cure; the complaint ought not, therefore, to be considered incurable, except in extreme or long continued cases, where timely professional assistance has not been resorted to, or in such cases as proceed from advanced age. But although, when the treatment is commenced at an early period, a favorable result may be anticipated, especially if there be not much derangement of the health,—yet the result will be doubtful, if the disease be connected with abscess or caries, and the health be not properly attended to—the symptoms indicating not only extensive disease in the vertebræ, but a morbid state of the constitution.

The greatest possible caution should be taken in having recourse to mechanical assistance; many contrivances have been invented for the prevention and removal of spinal deformity, such as steel stays, backboards, headswings and others of a similar kind; they are generally, however, productive of much mischief, inasmuch as they subject the wearers to a disagreeable restraint; in their endeavours to relieve themselves from it, they naturally give way to those improper positions, which, though affording temporary relief, are yet calculated to increase the deformity. Many young ladies, for whose benefit such expedients have been resorted to, have become rapidly worse, in consequence of their use. Indeed, the attempt

to correct distortion by violent means, is manifestly wrong; for although the shoulders may thus be kept back for a time, they are afterwards more liable to incline forwards, from the fatigue and debility induced by these applications. All contrivances of the kind, by their pressure on the bones and muscles, which support the upper part of the body in its erect position, must interfere with the natural motions of the back, chest, &c.; indeed their effects are often truly appalling, as may be seen by reference to Case 1, page 79. The patient here referred to, made trial of a pair of steel stays of the most approved construction, but by their use, the disease made greater progress than during the whole previous period of its existence.

Of all inventions of this description which have been introduced into practice, none are more inconvenient, mischievous and distressing, than what are commonly called head or neckswings; they are attached by a steel rod, which passes over the head, to stays of the same material, supported on the loins and hips by means of pads, and are intended to support the weight of the head. The stays are further contrived, so as to press upon the shoulders and other parts of the trunk, which may project; this instrument is calculated to produce consequences much more serious, especially with reference to young females, than the deformity it is intended to correct. Crutches for the support of the chin, shoulders &c., are very little better than the neckswings.

There are several other contrivances, the object of which is the exercise of the muscles of the back &c.;—

a couch, for instance, has been recommended, having a piece of mechanism affixed, which, on the patients raising up and letting down weights, is intended to produce flexion and extension, and consequently exercise the spinal muscles, by bending the body backwards and forwards; by this means, it is said, all the muscles of the body are called into action. For the same purpose, and also for extending the spine, another couch was introduced a few years ago, which consists of an inclined plane, resting on the framework of a sofa, with three separate short boards, covered with green cloth, for the shoulders, head and hips respectively; that for the shoulders being stationary, the other two moving on rollers—a weight is attached to the upper board for the head, and another to the lower one, for the hips. The patient reclines on these boards, and by the pressure of the body, and the weight attached to the lower board, the dorsal and lumbar vertebræ become acted upon, while the cervical vertebræ, in particular, are affected by the upper one, the middle board as before stated, retaining its position. In certain cases and stages of the disease, both these plans may be beneficial.

For relieving the spinal column from the weight of the head and shoulders, which, in a diseased state it is inadequate to sustain—for producing gradual extension of the spine, which will assist the displaced vertebræ to resume their proper position—for the convenient application of pressure to the projecting or distorted part—and the ease with which it can be changed and applied in different directions—for the comfort and pleasure with which it may be used, and moreover for its simplicity and uni-

versality of application, being equally adapted to all species of deformity, not only of the spine but of the extremities—the author is not acquainted with any means so efficient, as the employment of an apparatus described below, which he has long used with the greatest success.

It consists of an inclined plane, made of inch board, two feet in breadth, and about six and a half feet in length, furnished with feet, or made to rest securely on trussels. At the upper end, are three pullies inserted into a piece of oak, the latter being dove-tailed into the board; of these pullies, the two outer are about four inches, the middle one six inches in height from the board, the former ones being about eight or ten inches asunder. A similar piece of oak, having only two pullies, is attached to the lower end of the board; about one-third from the upper end of the plane, and six or eight inches from the sides, two openings are made, into which, also, pullies may be introduced.

The plane is made longer than an ordinary bedstead, that the weights may hang over at each end; it may then be placed upon it with the upper end resting on the headboard, thus forming a very convenient inclination; or it may rest on trussels made for the purpose, in which case it can be readily moved from one room to another. A blanket or counterpane, four or six fold, is put on the plane, upon which the patient reclines. It is also furnished with a number of straps and weights for extension, and with compresses for pressure. A head strap, made of soft leather, well stuffed with curled hair or cotton wool, and intended to pass under the chin and occiput, is

fastened to a cord, which passes over the centre pulley, at the extremity of which, a weight is suspended; shoulder straps composed of the same materials, and secured in a similar manner, pass under the axillæ of each arm and over the outer pullies, having weights also attached. Similar straps and weights are also applied round the ankles, and occasionally in the male sex, above the pelvis; these are passed over the pullies at the lower end of the the plane; pullies are also inserted in other parts of it for the purpose of passing other cords and weights, which may be considered necessary, to be applied to any part of the body. Shot, in bags, is the most convenient form of weight.

The openings in the upper part of the plane are for the purpose of admitting a strong cord, to one end of which is attached a shoulder strap, and to the other a weight, this is very useful when the shoulder projects, as also in cases of excurvation. In instances of projection of the sternum, when the patient is said to be pigeon-breasted, a piece of padded leather, or other similarly firm substance, is used with great advantage, being made for the purpose of passing over the projecting part, and the pressure is gradully increased or diminished at the discretion of the attendant. It should be six inches broad and nine long, to which six small straps are neatly affixed, three on each side, for the purpose of being united to corresponding buckles nailed to each side of the plane.

In cases of lateral curvature, where the right shoulder is much higher than the other, it is advisable to use extension upwards, only on the left side, whilst, extension

downwards must be used on the right; this may be effected by affixing a shoulder strap to the lower side, and a wrist strap to the higher, to which are attached cords and weights, passed over pullies at the top and bottom of the apparatus. It is also very useful in cases of considerable projections of the hip or side, to have two, three, or four holes made in the plane, and pieces of wood, six or eight inches long, protected by cushions of leather, introduced, so as to make a lateral pressure, at the same time that extension is used. The tapes or cords, to which the weights are suspended, are so adjusted, that the latter may hang a few inches from the floor; and they must not on any account, in the first instance, be so heavy as to inconvenience the patient, unless the surgeon in attendance has some particular reason for such addition, but must gradually be increased, from time to time, as each side may require.

The patient, being laid upon the plane and the apparatus adjusted, will be operated upon by a double extension, the head and shoulders will be extended upwards, whilst the trunk will be drawn gently in the opposite direction, the weights being so equipoised that the body is kept upon the plane, having no tendency to move either upwards or downwards: hence, the objection of some authors, who think that an inclined plane is rather prejudicial, on account of the weight of the upper part of the body pressing on the lumbar vertebræ, is completely obviated, because the pressure downwards is quite counteracted by the extension upwards.

At the risk of being thought tedious, the author will shortly recapitulate the objects of treatment.

1st. By means of the inclined plane and extension, to bring the bony structure of the body, into as near a form of symmetry as may be, and, of course, to keep it in that state.

2nd. By medicinal treatment, to improve the general health, forward the deposition of osseous matter in the bones, and assist nature in establishing the healthy function of each organ.

3rd. By frictions and shampooing, as a substitute for exercise, or in some cases, by hand-swings and other gymnastic exercises, compatible with the first object of treatment, to develope the muscular structure.

These objects are very important, because, if the health be not improved, any amendment in the form of the curvature will be of little avail, as on the patients' reassuming the erect position, he would probably soon relapse into his former state. Although no general plan can be laid down as to the medicinal treatment applicable to all cases of spinal deformity, and the accompanying disorders of the general health, yet a few remarks may be offered; bearing in mind, that the special treatment of each case must be determined by the careful consideration of the case itself.

As a general observation, however, it will be found that there is, in most instances, more or less derangement of the digestive organs, amounting in some, even to a cachectic habit of body. In commencing the treatment, it will be necessary to ascertain precisely the state of the secretions; and, where defective or redundant, to pursue such a course

of medicine, as will be likely to restore them to a healthy condition. When, however, the patient exhibits any peculiar habit of body, as a tendency to scrofula, rickets &c., along with such alteratives and purgatives as may be required—chalybeates and fresh-made syrup of sarsaparilla, used either alternately or conjointly, will be found very beneficial; great pains ought to be taken in the preparation of the latter, and its use should be steadily and sufficiently persevered in. In chlorotic and hysterical females, by a regular use of these remedies, combined with a generous light diet, frictions, and well ventilated apartments, a striking improvement is frequently obtained, even, in the space of a few weeks.

Modifications of treatment may be required where there is a predisposition to consumption, which need here only be alluded to, as the author intends, in a subsequent part of the work, to treat somewhat more at large on this point. He wishes particularly to direct the attention of the profession to the circumstance of the great relief experienced in incipient cases, by the use of the recumbent treatment.

A great majority of the cases of lateral curvature are accompanied by constitutional disorders of this kind, occurring in females from fifteen to twenty years of age, who have pallid complexions, furred tongue, torpid bowels, uncertain appetite, occasional headaches, irregular catamenia, drowsiness, slight emaciation, indisposition to exercise, and an unsteady or lounging gait, indicating a deficiency of vigour in the muscular system. Cases of this description soon experience great relief by a steady

administration of the requisite medicines, with a properly regulated diet, and daily ablution of the body, using warm or cold water, according to the state of health.

In patients where there exists a scrofulous inflammation of the vertebræ and the surrounding tissues, it will be necessary, along with the most vigilant general treatment, to adopt appropriate local means of relieving the disease; leeches and cuppings, with entire rest, occasional blisters, setons or issues, will all suggest themselves to the mind of the practitioner; as regards the latter applications, the author has before stated his preference of repeated blisters, or a blister kept open by savine cerate, the discharge of a large quantity of serum being often highly advantageous. Where, however, there is reason to believe that caries of the vertebræ exists, or that there is a collection of matter about the part, caustic issues or setons may be had recourse to; the recumbent position must be strictly enjoined, and such medicinal treatment as would be applicable to scrofulous cases in general.

CHAPTER IX.

SPINAL IRRITATION.

ALTHOUGH much has, of late, been done in investigating the structure and functions of the spinal cord, a wide field of inquiry will long remain open to those whose attention is directed to this intricate subject. The close attention requisite for its efficient study, and the length of time that must be spent in collecting and arranging the essential facts connected with it, render the undertaking one of extreme difficulty and labour. If this be the case in reference to the normal condition of the spine, how greatly must the difficulty be increased in endeavouring to ascertain its morbid changes and the dependance of functional anomalies thereon.

It is not, however, the intention of the author to enter fully into the consideration of those numerous diseases of the spine, which are unconnected with curvature; yet, as most cases of distortion have either previous or

subsequent disease of the column attendant upon them, it may not be misplaced to offer a few observations on a very large class of diseases, which, for want of a better appellation, have been comprised under the term of "spinal irritation;" more particularly, as vast numbers of inflammatory, as well as neuralgic, affections occur, both of which are efficiently relieved by the same plan of treatment which the author has found successful in reference to deformities of the spine. All the reasons which have been urged for an early attention to the symptoms which precede curvature, will hold in full force as respects irritation of the spine. Neuralgic affections frequently precede caries of the vertebræ, and sometimes are the result of chronic, probably scrofulous, inflammation of the part affected, which, in all cases, requires prompt treatment.

Notwithstanding the intimate connexion between the spinal nervous system and the brain, affections of the the former seem to be, in a great measure, independent of those of the latter; whether, however, the morbid change be in the nerve or its appendages may not be so easy to determine, but it is quite certain that, besides the local affection, much of its effects are experienced in the nervous branches, affecting either the motion or sensation of a portion of the body, or the functions of the viscera. There is less difficulty in ascertaining what part of the column is the exact seat of the disease; for there is generally a localized pain or aching, which is increased by percussion, or pressure on the part most affected, and the peculiar symptoms will, to a considerable degree, account for the

local affection; if it exist in the upper part of the spine, the symptoms will be found in the thoracic system and extremities—if towards the lower part, they will exist in the abdominal or pelvic cavities, and lower extremities.

The spinal cord and its numerous and complex appendages are so delicately constructed, and have so intimate a connexion with all the essential organs of health and life, that any material disorder in them must eventually give rise to a number of painful and debilitating affections. They are, like other tissues of the body, subject to inflammation, and a very slight pressure, on the column, or on the nerves which have their origin there, will necessarily disturb the functions of the parts to which they are distributed, and thus we are enabled to account for a variety of symptoms, which otherwise would be inexplicable. Many of the nervous and hysterical affections, which so frequently occur in practice, together with numerous disorders of the functions of digestion and nutrition, would, if traced to their origin, be found to proceed from some mechanical or functional derangement of the nerves of the vertebral column.

The symptoms of spinal irritation are so numerous and anomalous, compounded of the results of inflammatory and neuralgic affections, that it is difficult to enumerate them in any kind of connexion which would be characteristic of the disease. They commonly occur in young females of delicate habits, but are also met with in persons of both sexes, at a more advanced age. At the commencement of the attack, there is a slight numbness

and feeling of stiffness, accompanied with a rigidity and sense of weakness in the extremities, as if the patient would be deprived of their use. The tongue is generally furred, the stomach disordered and frequently flatulent, the functions of the lungs and heart are often affected, and, in almost every case, there is a deficiency of catamenia. There is often considerable pain throughout the region of the spine, particularly between the shoulders, accompanied with considerable heat in the affected part. The feeling of heat becomes exceedingly troublesome, perspiration is greatly increased, and the pain in the seat of the disorder is much affected by motion or percussion, and even by slight pressure. Sometimes, the corporeal sensibility of the patient is very much augmented, and at others greatly diminished; and it is not unusual for a fixed pain to attack the nerves in some particular part of the body, and become stationary or periodical. These distressing and apparently discordant sensations are often experienced about the sides of the chest—they are followed by increased difficulty of breathing, spasms, and various muscular contractions in the extremities, numbness, cramp, tingling in the ears, tightness across the epigastrium, irregularity of urine, and constipation and flatulence of the bowels.

Instances sometimes occur, in which there is considerable difficulty in determining whether the symptoms proceed from some peculiarity of the nervous system, or are occasioned by inflammatory action. However this may be in certain cases, yet, as a general rule, it may be laid down as absolutely necessary, to make an early and minute examination of the spine; the accumulated expe-

rience of many very intelligent members of the profession, having proved that neuralgic pains, occuring in various parts of the body, and even affecting the functions of the viscera, have their origin in a local irritation of the spinal cord.*

The author has had numerous opportunities of subjecting cases of spinal irritation to the same treatment as that which he adopts for curvature, and with the most happy results; but it may be necessary here to remark, that the general medicinal treatment of the former cases requires, if possible, greater attention than that of the latter. Considerable derangement will commonly be found in the state of the secretions, which, in many cases, is the sole cause of the disease, no perceptible organic change having taken place in the spine.

The following are the particulars of a case, selected as one which will perhaps illustrate the symptoms and progress of the disease, better than a more lengthened dissertation.

CASE.

Miss G——, aged twenty, resident in a neighbouring county, was, until three years of age, a remarkably healthy child. About that period, she had an attack of scarlet fever, so severe that her life was despaired of, subsequently she has been in a delicate state of health. It was

* The author would refer the reader to an excellent treatise on neuralgic diseases, by his townsman, Mr. T. P. Teale, in which the dependence of certain visceral disorders upon irritation of the ganglionic system of nerves is clearly proved.

some months before she recovered from this illness, which left a defect in her hearing, which has continued to the present time.

When seven or eight years of age, she was attacked with violent spasmodic contractions in the muscles of the chest and spine, to which she has all along been very subject; she had also a feeling of numbness and coldness in her extremities, with spasms throughout her frame, particularly in the back and chest; and her head was so much affected as to occasion considerable dimness of sight.

When about seventeen, she suffered so much from her back &c., that caustics were inserted on each side of the spine, and kept open about five months; perhaps, during the discharge, the pain in the head, and the uneasy, unnatural sensation in the limbs might be said to be somewhat relieved, but she did not experience any cessation of the pain in the chest, and her health, in other respects, was decidedly worse. A seton was subsequently inserted, which was kept open for about two months; and during the ensuing half-year she was frequently and copiously bled with leeches, and counter irritation was kept up by repeated blisters. From these remedies, little or no advantage was derived, and it was at length determined to try the effect of change of air, &c. For this purpose, she was removed to the North-riding of the county of York, where she remained about four months, continuing to get worse, with the exception, perhaps, of being able to take food somewhat better.

When first seen by the author, the patient was in a very helpless and distressing condition; her respiration was short, impeded and difficult, with constant inclination to cough; she experienced great difficulty in taking her food, the act of deglutition was painful and gave the sensation as if something hard, as a marble, was passing the œsophagus; she had constant pain about the sternum and scrob. cordis, and experienced great heat and heaviness on each side of the head; indeed, owing to this and the spasmodic pains, she could scarcely be said to have any season of comfort, or freedom from pain. Of these paroxyms, which came on in the evening, she had generally about an hour's notice; they were preceded by a most distressing depression of spirits, accompanied with severe nausea, giddiness in the head, and a painful sensation in the eyes. These symptoms were succeeded by acute pain in the chest, occasioning great suffering, and obstructing the respiration; it subsequently extended over the stomach, from the chest to the back; she described it as resembling the piercing of a needle, or as similar to the acute pain experienced in severe attacks of the tooth-ache, and as lasting from one to two or three hours.

Such was the state of the patient, when application was made to the author: she was recommended to adopt the recumbent treatment, and, for that purpose, was removed to Leeds; she manifested great readiness to make trial of every suggestion, which had reference to her cure; and the following extracts from his journal will shew the effects produced by perseverence in the plan.

She commenced the recumbent treatment on the 22nd of December, 1837. In the course of a week, the fatigue which is generally experienced on the first use of this position passed off, and the patient began to feel her breathing less distressing.

1838. January 22nd. She feels considerably relieved, but the nervous uneasiness or irritability is still troublesome, particularly towards evening.

March 15th. Breathing is much improved, but a little pain continues about the scrob. cordis, or under the sternum; feels very little of the severe choking sensation which used to distress her exceedingly, unless she be excited, or has taken food which disagrees with her; these unpleasant sensations are experienced only when off the plane, not when laid. Her head and eyes are more comfortable than she ever recollects them to have been, she is, indeed, wonderfully improved in this respect, and is not now obliged to have recourse to food in order to relieve the sensation complained of, as she can do without it for many hours together, a circumstance which for some years has been unusual to her.

March 23rd. Miss G. returned home much improved, and in the enjoyment of a state of health, to which she had long been a stranger.

May 12th. Have had an opportunity of seeing this patient, who gives a very satisfactory account of her symptoms, but says that her repose is not so comfortable as it was during the time she used the inclined plane.

CHAPTER X.

PULMONARY CONSUMPTION.

In the month of September last, the author had the honour to introduce the subject of Deformities of the Spine, to the attention of the Medical Section of the British Association for the Promotion of Science, at their annual meeting, held on that occasion at Liverpool.

In concluding his observations, he gave it as his opinion, that, "next to the removal of the first causes of tubercles of the lungs, he "considered the *recumbent position*, and consequently the correction and "expansion of the chest, as one of the most important *auxiliaries* pos- "sessed by the profession, for the cure of cases of incipient consumption."

In an article which subsequently appeared in the Leeds Mercury, detailing the proceedings of the Association, he is erroneously represented to have made use of the following expression, viz. that "Tubercles of the lungs have been cured by the relieving board,"—in allusion to an Apparatus for the cure of spinal deformity, a model of which he exhibited to the Section at the time. On noticing this mis-representation, he addressed a note to the editors, pointing out the error and requesting its correction, with which request they readily complied. As, however, they intimated that the mis-statement alluded to, was copied from a Liverpool paper, and therefore, in all probability would find its way into a number of other publications, both town and provincial,—and on account of the frequent occurrence of pulmonary disease in connexion with that of the spine; for these reasons, the present opportunity is taken to correct the erroneous impression that might otherwise be entertained of his opinions.

The preceding explanation will, he trusts, be received as a sufficient apology for introducing a subject, which, though not strictly comprehended under the title of his treatise, is yet closely connected with it, and is also one of very great importance.

The species of consumption most common, and most fatal to human life, is the tuberculous. To this, therefore, the author would confine his remarks, particularly as the treatment which is proper for one species of the disease will have an equally favourable effect upon the others, of which it is the less necessary to treat, as they are fully described in works written expressly on the subject. In the course of a long and extensive practice, not a single instance has occurred amongst the consumptive patients of the author, in which there was not decisive evidence of the existence of the remains of former disease, generally originating in some inflammatory attack on the thoracic or abdominal viscera, as measles, scarlatina &c.—hence the inference, that consumption is not hereditary, but the result or effect of former diseases, giving a predisposition thereto. That this circumstance should be closely investigated and clearly understood is highly essential; for, if the disease be regarded merely as a local and original affection, it is more likely to be neglected, until it has assumed a somewhat dangerous aspect: but if, on the other hand, it be admitted that a particular disorder, previously induced, is the cause of its production, prompt attention will of course be directed to the removal both of the predisposing and exciting causes, and, by these means, the practitioner will probably prevent the further progress of the fatal malady.

Consumption is generally considered as an heredi-

tary disease;—that it is exclusively such, is not, however, confirmed by observation and fact. Amongst children of the same family, it will often be found that one only is affected by the complaint, whilst the rest are entirely free from it; and many consumptive parents have strong and healthy children; if the disease were purely hereditary, its effects would be uniform and corresponding. To these remarks it may probably be objected, that although the immediate progenitors of the consumptive individual may not have evinced unequivocal symptoms of the malady, yet that some of his ancestors may; and that in the case of the former it may have existed in a latent state, and escaped observation.

With a view to examine the objection just noticed, the author, some years ago, instituted a very minute and particular investigation into the point in question, throughout a great number of families, some of the members of which had died of Consumption. This inquiry comprehended particulars of the physical condition, diseases, and length of life of the respective members of each family, including not only the children, but the parents and grand-parents, paternal and maternal: the forms given in the next and following page will show the method adopted in these inquiries.* The result is a thorough conviction, that the disease does not, by any means, partake of that strictly hereditary character which is so generally supposed, and further, that it is not always incurable.

* Since the year 1823 the author has kept journals, chronologically and nosologically arranged, of all the cases of disease which have come under his care: were the plan generally adopted by the profession, it would be a great source of satisfaction and information to themselves, would form a beautiful series of statistical tables, and tend much to the advancement of science.

And further, with a view to test these observations, he also took an account of the children born during seven years, from 1824 to 1830, both inclusive, showing the constitution of parents—the number of children they had in the above period, and a sketch of the state of their health. The intention of the author in adopting this plan, is, that he may possess a document containing these particulars; to which reference may be made at a future time, that it may be ascertained how far the indications of infancy and

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FORMS EMPLOYED IN THESE INVESTIGATIONS.

TABLE 1.

Mr. Charles M*******r, aged 27 years, Tobacco Manufacturer, of this Town.

	State of Infancy, Youth, &c.
Temperament, Sanguineous.	Was delicate when a child, subject to pain in the stomach and bowels; had diseased lungs, and cough from infancy to 14, was better until 18, when he had the typhous fever, which left a short and teasing cough, of which he never was well after.
Figure, ... Rather small.	
Complexion,..... Fair.	
Disposition, ... Good, Amiable.	

Had typhous fever again which terminated fatally, in consumption, i. e. abscess in the lungs, in three weeks.

Relatives died,

Father, of apoplexy ..... aged 68	Mother, of apoplexy 66
Grandfather, Paternal, ...80	Grandmother, Paternal,.....86
Do. ..... Maternal, of fever 40	Do. ..... Maternal, of paralysis ...82

His parents were married forty-two years, and had eight children, two of whom died young.—Maria, aged 2, of croup. Mary Ann, aged 7, of water in the brain.

N. B. The author mentioned during his illness, that his constitution was bad, and that he was not likely to recover: and his mother objected to his marriage, because she thought he would not live long.

Inference from the above Case. That the disease does not appear to have been hereditary in this family, but the result of infantile affections.

A TABLE SHOWING THE HEALTH OF PARENTS AND THEIR CHILDREN.

Names.	*Age.*	*Abode.*	*Temperaments and Health of Parents.*		*Have had 3 children in the seven years.* *Son.*	*Dau.*	*Names.*	*Age.*	*Of whom have died.*	*How born*	*Health during infancy*	*and since.*
Mr. B——*			Temperam.	Lymphatic	1	2	Mary Ann	10	None	Very small	Delicate, subject to inflammation of the lungs, was always much stuffed.	‡ Has been better within the last year, than she has ever been before; used to have generally a bowel complaint, evacuations, dark and offensive, now more natural.
			Figure	Stout								
			Complexn.	Dark								
			Health	2. †								
Mrs. B——			Temperam.	Sanguins.								
			Figure	Stout								
			Complexn.	Fair								
			Health	1.								
							John Henry	8		A remarkably fine Child.	Very delicate indeed, sickly in a morning, vomits a liquid of a sour, watery or milky appearance, in other respects, a good deal like his sister.	Has been delicate all along, and is so yet, fanciful in his eating, has bad bowels, and lungs also, but not so bad as his sister's.
							Catherine	6		Fine Child, but not so much so as John Henry	Has had all along good health, which still continues	Has had no particular complaints, except coughing, especially in the nights.

* The names, ages, and residence of the parents are purposely omitted.

† The health of the party is indicated by numerals 1. 2. 3. 4.; 1, being good health, 4, bad health, and 2 and 3 refer respectfully to good or bad health: a little practice renders this plan quite familiar.

‡ Excellent memory for repeating pieces, and indeed for every kind of school employment.

childhood prove correct in reference to the health of future life, and to notice at what ages, and of what diseases the children may respectively die. It is obvious that this document will be as accurate as can well be constructed, the writer having been personally acquainted with the respective families.

Daily experience proves that children have not neecssarily the same diseases as their parents: it frequently happens, for instance, that parents, who, when young, were of a highly scrofulous temperament, have subsequently very fine children, without any tendency to the disease; and on the other hand, parents in whom there was no appearance of the disease, have children much affected therewith. The importance, therefore, of having correct views of the origin of pulmonary tubercles, is obviously great, as, in proportion to the accuracy of the opinions so entertained, will be the probability of a successful issue of the treatment.

Still, it is not meant to be denied that there is a close affinity, an intimate connexion, an inexplicable union between children and their parents, as regards the physical constitution and temperament; but this is modified by a variety of circumstances: the latter often improve in health, by the adoption of a more rational mode of life than they had formerly led; or, by a contrary course of conduct, become more diseased and enfeebled: this cannot, in either case, fail to have a corresponding effect upon their children. Besides, the natural effect of parental diseases are often ameliorated and rendered in-

noxious by the fortunate circumstance of one parent being of a sounder constitution than the other. Thus, for instance, a healthy mother will often ward off paternal disease from her offspring, or at least soften its virulence: this intermixture of constitution, (if the expression may be allowed,) has a beneficial effect upon society at large; it improves not only the bodily health, but also the dispositions, tempers, and entire temperaments of succeeding generations. Were parents upon an equality in this respect, i. e. were they both equally affected with disease, a progressive decline in the mental and corporeal energies of the human frame would, doubtless, take place. The simple corrective now under consideration exerts a beneficial influence, and has probably greater efficacy than is generally imagined. By the silent, but certain operation of the union of opposite temperaments, the nervous and timid parent may have children happily free from so distressing a feeling,—the diseased have healthier offspring,—and the weak in body and mind may be blessed with issue improved in both respects. If this be the case, and the assumption will stand the test of close investigation, how greatly must the advantage be increased, when both parents are in possession of sound minds and health. The children of such favoured individuals must possess every natural advantage, which would, no doubt, be long retained, did not their descendants, by acting in opposition to the great laws of nature, lose the physical advantage derived from their healthy parents.

A disposition to regard consumption as entirely hereditary, must necessarily be attended with consequences

unfavorable to the improvement of medical science as respects its treatment, and consequently injurious to those who have the misfortune to be suffering under its effects. If the medical attendant entertain this opinion, he can scarcely be expected to be very zealous in his exertions to effect a cure, which he regards at least as more than doubtful; in like manner, also, the prevalence of such an opinion must have a very distressing and injurious effect upon the minds of the relatives and friends: on the contrary, how great the comfort, if it be true, and facts prove it to be so, that it is not necessary to consider it either strictly hereditary, or, in its incipient stage, absolutely incurable. Its being considered so universally fatal is, doubtless, a great source of anxiety in many families, and further, is often the cause of an unfavourable termination, by diminishing the efforts which are obviously necessary for the removal of the morbid affection. That some persons, those for instance of a sanguineous temperament, of a tall, thin figure, with a long neck, high and round shoulders, and a contracted chest, are more subject to pulmonary disease than those of an opposite figure—no one, who has been attentive to the subject, can doubt: but this tendency to consumption does not arise immediately from that peculiarity of figure, but from the original cause of that peculiarity, the foundation of which is laid in pulmonary inflammation during childhood, or combined with infantine disease generally. Indeed, the diathesis of a consumptive person describes exactly the condition of one who has suffered much from previous disease; hence, the writer has always found that in cases of incipient consumption, there is a delicate habit of body, and the evidence of

disease, already alluded to. This has induced him to be particular in inquiring into the state of the patient's health during infancy, and he has invariably learned, that there had been either inflammation of the lungs, or severe mesenteric disease, or both, in childhood. When the recovery from such attacks has not been perfect, the patient becomes predisposed to consumption and there wants but an exciting cause in future life to bring it into action. Thus it is clear, that tubercular consumption is not a primary disease, but has its origin in some previous inflammation of the part affected; in this manner, the inflammatory diseases of children become the *predisposing*—and catarrh, influenza, fevers, especially those of a severe or typhoid character, become *exciting*—causes in after-life; and further, it is observed that tubercles do not occur until the health be considerably impaired.

This part of the subject may be well elucidated by reflecting on the enlargement of the external glands of the body, which, the general health being good, remain in the same state for years, without any increase in the diseased action: whilst, on the other hand, there are cases, where, on a morbid change taking place in the body, these glands immediately become affected, and the disease must, of course, be expected to progress. Numerous post-mortem examinations, both of children and adults, and close attention to the diseases to which the former have been subject, after having severe inflammation of the lungs, together with careful observation of the progress of the complaint, have led the writer to the conclusion, that tubercles have their origin in that inflammation. The

structure of the vessels of the lungs becomes enlarged and diseased, and the consequence is a deposition of a morbid secretion in their capillaries. These minute particles are subsequently diminished or increased, according as the health of the patient is improved or deteriorated; hence, they continue in existence, and are ready to be acted upon,—to lie dormant or diminish,—until the exciting cause,—(which would seldom, if ever, act as such, except in constitutions predisposed by former disease,)—rouse the morbid action. Recovery or death will then take place, according to the extent and duration of the predisposing cause,—the delay in obtaining proper medical assistance—and the degree of promptitude with which it is applied. Unless, therefore, the patient has had previous disease of the lungs, the most severe inflammations will not produce tubercles that will suppurate at the time and destroy life; or, in other words, produce tubercular consumption.

Cases are on record where tubercles have been seen in the fœtus; the author has witnessed this, but it was in a case where the whole body was in a very emaciated state, and the mother had long been in bad health; and it is probable that it is under such circumstances that tubercles in the fœtus, or very young children, have been found.

The question is not whether we are to expect children to be as healthy who are born of parents in a very bad state of health, as if they were in the enjoyment of such health as nature intended during the procreation of the species; but whether the parent's health, not being quite so good as it ought to be, or up to the standard of

health, (supposing the predisposition, on the part of the parent, to be consumptive,) we are, as a matter of course, to expect the children to be similarly predisposed: there is, indeed, a wide difference in the two cases.

Having thus entered pretty fully into the origin of pulmonary consumption, it remains to shew in what manner, recumbency of position, or the use of the apparatus before described, may be expected to be serviceable.

The author has so often had occasion to notice the marked advantage, which has resulted from confinement to the apparatus, to patients labouring under diseases of the spine, and who were otherwise in a bad state of health, that he has been induced to recommend its adoption in many cases not strictly spinal: this practice he has found to be attended with the happiest effects, particularly where there was a strong predisposition to pulmonary disease. In a great majority of these cases, the bones composing the chest* become contracted, the ribs have a flattened appearance, the sternum projects, and the vertebral column loses, in a very considerable degree, its perpendicular position and natural elegance of form; and the lungs, having been long in a morbid state, become incapable of full expansion, and are consequently reduced in size, and impaired in function.

Wherever disease exists, the greatest benefit is experienced by the removal of all causes of irritation, which, of course, retard recovery and increase the violence of the symptoms; mitigation of these would often be effected by

* Vide, Page 23.

this simple expedient alone, but, when to it are added the use of appropriate medical treatment, the strict observance of a proper regimen and other favourable concomitants, the improvement will be proportionally rapid and certain.

Amongst the advantages to be derived from the adoption of this treatment by patients predisposed to consumption, may be mentioned the following.

1st. There is time and opportunity to adopt a proper course of medicines, the efficacy of which depends greatly upon steady and regular perseverence. Many erroneous opinions are entertained by the public on this subject, and much injustice done to the materia medica: though nature, unassisted, may, and does do much for the restoration of a diseased habit of body, yet, when her efforts are assisted by the salutary operations of the healing art, that restoration is rendered more speedy and efficacious.

2nd. During the period of confinement, which, in a majority of cases, may be limited to three months, a favourable season is afforded for the adoption and steady trial of a regular system of diet, which is of great importance to the beneficial operation of the prescribed remedies.

3rd. The removal of all causes of excitement and annoyance, and the enjoyment of a season of ease of body and tranquillity of mind.

4th. The exemption from the ill effects of currents of air, and sudden changes of atmospheric temperature,

which are usually considered as causes of delicate persons contracting what are termed "colds."

5th. Greater freedom from the interruptions of company, which often retard the means employed by the medical attendant for the recovery of his patient.

But the advantages to be derived from the use of the apparatus are not restricted to confinement alone; all pressure being, by this treatment, removed from the chest, its alternate contraction and dilatation are more easily and perfectly performed, there is less impediment to the free action of the heart and large blood-vessels, and a greater probability of there being less congestion of the digestive organs.

Having thus entered so far into the subject of pulmonary consumption as may be considered necessary in order to place his opinions before the public, the author would conclude by inviting the attention of the profession to the recumbent treatment; being satisfied that the delicacy of constitution, so observable in young females from causes already fully detailed, would thereby be greatly relieved.

If impropriety of dress be the chief cause in the production and extension of spinal distortion, as the author has endeavoured to show in a preceding chapter. *(Vide Page* 31.*)* it is not less so in reference to pulmonary disease; for to it, as an exciting cause, is this terrible scourge of civilized life indebted for a great proportion of its almost countless victims, which would, comparatively, be prevented, by following those obvious dic-

tates which reason and nature point out. The extent of the distress and misery which pervade families from this cause, (and how few there are who are not so afflicted) can be appreciated only by those who are suffering under its effects, or by those who are frequently called upon to witness such scenes.

Most sincerely is it to be desired, that the nature and causes of this class of diseases were thoroughly understood; for, not until then, can we reasonably hope that a more successful plan of treatment will be established, and that future generations will, in a great measure, be freed from that chief cause of the greatest of all evils, the *premature mortality* of mankind.

FINIS.

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